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THE BRITISH OPEN UNIVERSITY : A STUDY ON THE ROLE OF TELEVISION LEARNING IN A DISTANCE EDUCATION INSTITUTION

BY

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ABSTRACT

A good deal of media literature is devoted to construct media taxonomies which try to match media to different learning situations. This study is an attempt to illuminate the roles that television can play as a facilitator of learning in distance education. Special emphasis is given to the use of television in the British Open University. The intention of this study is to learn from the British Open University its strategies for the effective use of television, so as to shed some light on developing learning through television in Hong Kong.

Analyses in this study is based on primary and secondary sources of information. On the basis of secondary sources concerned with television learning in general, the theoretical foundation for understanding television learning is constructed. With policy papers, research findings and programme evaluation data from the British Open University serving as primary sources of information, the factors affecting the effectiveness of television learning at a distance is identified.

From the experience of the British Open University, it is found that television can be used effectively for learning purposes in distance education, but not until it can overcome some obstacles. The effectiveness of instructional television at the British Open University has been undermined by difficulties with transmission arrangement, the control characteristics of broadcasting television and student inability to use television materials. For television to be used effectively in a distance learning context, the British Open University has used the following strategies : (1) it develops student's skills for learning from television; (2) it provides substantial study guides

for television programmes; (3) it improves the structure of the television programmes; and (4) it develops learning from television through video cassettes.

As the study findings support the use of television in the British Open University, it is clear that television can also serve a useful function in developing distance learning in Hong Kong. In the light of the practical experience of the British Open University, the solid guideline for the effective use of television in Hong Kong is outlined.

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INTRODUCTION

For many years the demand and the need, both perceived and actual, for the expansion of opportunities in tertiary education have been manifest all over the world. During the last twenty years, in many countries at diverse levels of economic development, a significant amount of effort and time have been invested in considering the possibility of expanding the provision of higher education. In Hong Kong, this demand was recognized in the Report No. 1 of the Education Commission which stated - "We are, however, very much aware of the demand for more tertiary level opportunities and consider that alternative forms of attendance should be developed to allow for an expansion of opportunities at the tertiary level."

For the Visiting Panel which make recommendations for the development of education in Hong Kong, "access to education for all at any period of life..... ought to be a basic tenet." The Panel stressed the importance of providing second chances for people beyond school age to further their education.

The growing importance of adult education in a society like Hong Kong is generally recognized by educators here. In July 1983, the Secretary for Education and Manpower wrote to the Chairman of the University and Polytechnic Grants Committee (hereafter the U.P.G.C.) asking that funding body to consider fully the question of an Open University in Hong Kong. After considering the feasibility of setting up an open university modelled after the United Kingdom Open University (hereafter the UKOU), the U.P.G.C. did not recommend the establishment of such an institution. According to the U.P.G.C., the

establishment of an institution such as the UKOU is inhibited by factors such as : (1) the necessary academic and technical expertise required to staff such an institution could not be found in Hong Kong; (2) the cost of bi-lingual preparation of teaching material would be excessively expensive; and (3) most students would not have an appropriate study environment at home.

However, while it did not recommend the establishment of an open university, the U.P.G.C. strongly favoured the development of open education in Hong Kong. In its report to the Commission, the U.P.G.C. stated :

> "We do recommend that a high priority is given as soon as possible to the development of what we will term 'open education'. By 'open education' we do not imply a single method or system of education or training provided through an institution devoted to reaching non-traditional students. We include distance learning by correspondence courses combined as appropriate with radio and television programmes, part-time attendance at existing recognised institutions, external degree and diploma programmes offered by a university, polytechnic or recognised college and short courses particularly those aimed at providing continuing education." (1)

Moreover, the U.P.G.C. considered that open education should not be perceived as 'special', but as an integral part of higher education. It recommended that the development of open education should be undertaken by all the institutions of higher education and that this development should be a co-operative and collaborative venture. By implication, the existing higher education institutions will be expected to play an active role in carrying out open education. It is therefore imperative for them to consider the possibility of using existing resources to develop open education in the Hong Kong situtation.

Definition of the Problem

Different Interpretations of Distance Education

In the last decade, scholars have presented many interpretations of distance education. The theoretical positions from which these interpretations have been made can be grouped under three headings :

(a) Theories of autonomy and independence - M.G. Moore's Interpretation

> "Distance teaching may be defined as the family of instructional methods in which the teaching behaviours are executed apart from the learning behaviours, including those that in a contiguous situation would be performed in the learner's presence, so that communication between the teacher and the learner must be facilitated by print, electronic, mechanical or other devices." (2)

Moore's interpretation points out two basic characteristics of distance education. First, Moore highlights the fact that distance learning materials are especially designed for independent learning by students who do normally meet the instructional staff. Second, it is also important for Moore that the use of education technology in distance education helps the learner to develop effective learning through two-way communication. In his later article, Moore suggests that distance learning systems should allow the learner to initiate this two-way communication in order to encourage autonomy and independence. (3)

(b) Theories of Interaction and Communication - Holmberg's Interpretation

"The term 'distance education' covers the various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or on the same premises, but which, nevertheless, benefit from the planning, guidance and tuition of a tutorial organization." (4)

Holmberg outlines two essential elements of distance education. Firstly, he points out that distance education tolerates the distance between the instructional staff and the learner. Secondly, he describes that the practice of distance education relies on the planning and operation of an education institution.

In addition to the above interpretation of distance education, Holmberg also describes it as a guided didactic conversation. (5) He sees that distance education opens possibilities for study adapted to individual needs, wishes and conditions. In the practice of distance education, students benefit from pre-produced course developed for them and also from interaction with the tutors and other student support services. It is this arrangement which Holmberg characterises as guided didactic conversation.

(c) Theory of Industrialisation - Otto Peters' Interpretation

The two interpretations considered so far have some elements in common. For Otto Peters, however, distance education can be viewed from a different angle. Peters thinks distance education can best be understood in the following way :

> "Distance teaching/education is a method of imparting knowledge, skills and attitudes which is rationalised by the application of division of labour and organisational principles as well as by the extensive use of technical media, especially for the purpose of reproducing high quality teaching materials which makes it possible to instruct great numbers of students at the same time wherever they live. It is an industrialised form of teaching and learning." (6)

According to Peters, distance education and conventional education are two separable forms of education. Conventional education is based on personal communication while distance education is based on industrialised and technological communication. Distance education can be understood as an industrialised form of education in that it emphasizes the mechanisation and automation of teaching methodology. The effectiveness of instruction in distance education also depends greatly on prior planning and organization.

Between teacher and learner in a distance education context, Peters concludes that their relationship is being controlled by technological rules, maintained by emotion-free language, and based on a limited possibility of analysing students' needs and giving them directions. (7) This differs markedly from the teacher and learner relationship in a conventional context of education, which is dominated by personal interaction.

Taking into consideration the points presented by the three interpretations, we can say that distance education has the following major characteristics : Firstly, it allows separation of teacher and learner imposed by distance. Secondly, it develops learning through technical media which allows two-way communication. Thirdly, it is an institutionalized and industrialised educational form and thus it is different from private study.

Characteristics of Distance Learning Method

From the three different interpretations of distance education, it is

clear that distance education denotes the forms of study not led by teachers present in classrooms but supported by tutors and an institution at a distance from the students. Bascially, in a distance learning situation, the students work on their own and develop learning through self-instructional course materials specially prepared by a distance education institutions.

(a) Indirect communication through pre-produced learning package

As far as learning methods are concerned, learning at a distance can be distinguished as an indirect communication between teacher and learner by means of pre-produced learning packages. Obviously, the primary information channel in conventional learning is classroom teaching. In distance learning the channel is usually replaced by specially prepared self-instructional materials. The separation of teacher and learning results to low degree of direct teaching. Therefore, learning at a distance have to exploit all other possible methods of communication.

In the mode of distance learning, the student does not come to the teaching institution for instruction; conversely, it is the teaching institution that reaches out to the student by means of pre-produced teaching materials. It is a complete reversal of the traditional method of teaching and learning and therefore a new educational experience.

(b) Course Team Approach

Unlike teachers in conventional teaching, distance educators are faced with the very difficult task of having to communicate with students at a distance. In the classroom, a skilled teacher can discern whether

students are attending and whether they are absorbing the information being presented. When distance educators transmit information via printed words or technical media, they are unable to ascertain whether the learner is absorbing the information or being overwhelmed in confusion and consternation. As distance educators do not have the benefit of face-to-face interaction with their learner, the challenge is therefore far greater than for those who provide traditional instruction. In view of this limitation, instructional materials for distance learning must be rigorously designed, systematically prepared and carefully evaluated.

Since the production demands abundant resources, both material and human, and requires long term planning, a large scale distance learning system such as the UKOU requires a course team to undertake this important task. In the course team approach, learning materials are devised and controlled by a team of academic staff, educational technologists and media producers. The course team is primarily concerned with the design and production of course materials. The members of the team structure courses, select course and unit objectives, and match objectives, teaching materials, and test items. Such an approach to course development might be considered appropriate in the UKOU because its large-scale operation can justify the production cost involved.

(c) Distance Learning Situation

The use of ready-made learning materials makes distance learning inherently more individualized than the conventional face-to-face method. The student may learn whenever he wants and wherever he wants; he may also learn at his own pace. He learns, therefore, in the way and at the pace

which is most suitable to him since he controls his own learning situations.

On the negative side, however, distance learning can be a lonely endeavour. The student does not learn in a wholly supportive atmosphere. In the conventional mode, classroom learning situation is itself supportive of the learning process. In the distance learning situation, the immediate feedback available for the face-to-face learning model is entirely absent. The supportive environment of the peer group is also lacking while the maintenance of the individual's confidence is difficult to establish. It is therefore vital that institutions of distance education provide their students with guidance for developing a sound strategy for learning at a distance.

Major Differences between Conventional Education and Distance Education

As is clear from the foregoing survey of the fundamental aspects of distance education, major differences exist between conventional education and distance education. They are juxtaposed in the following table to provide an extensive comparison of the various aspects of these two different approaches to education :

TABLE I : MAJOR DIFFERENCES BETWEEN CONVENTIONAL EDUCATION AND DISTANCE EDUCATION

ISSUES	CONVENTIONAL EDUCATION	DISTANCE EDUCATION

Students	- relatively homogeneous - same location - always present in the education institution - relatively dependent learner usually guided by teachers in classroom situation - are surrounded by familiar cues associated with learning - experience limited degree of freedom in the arrangement of learning activities - low willingness and ability to work without direct superivision	- probably heterogeneous - scattered - separated from the education institution - independent learner separated from teachers and other learner - are surrounded by environment which is designed to serve other purpose (distractors) - experience high degree of freedom - high willingness and ability to work without direct supervision
Teachers	- teachers teach - exercise high degree of control on pedagogical structuring, instructional design, execution and evaluation of the topics taught	- institutions teach - those jobs may be assigned to other staff and division of labour is necessary

	- personality and idiosyncracie are key to effective teaching - possible direct control of learner by teacher	- personality is played down and specialised course development skill is needed - teacher's influence is indirect
Learning Materials	- can be of low didactic standard - linking of learning materials to learning is automatically set up during the teaching/ learning process - higher guarantee that learning will occur after the dispatch of learning material to students	- high didactic standard (well organized, clear, etc.) - this link is at the centre of the organizational structure - no guarentee the learning will occur
Course Development	- low starting costs - high student variable costs - relatively simple procedures	- high start up costs - low student variable costs - relatively complex, procedures

Communication Pattern	- face-to-face - immediate, personal contact between learner and teacher - need not be planned and structured to last detail - mixture of cues (personal, content-related, organization-related) - informal and personal - convey both verbal and nonverbal information - can readily adapt the message to the momentary details of the situation - personal relationship can moderate learning - wide opportunities exist for imitation, identification learning - possible immediate emission of responses by learners and provision of feedback by teacher	- media based - contact through media, occasionally supported by face-to-face meeting - usually highly planned, structured, tested and improved - heavy emphasis on the transmission of content (dependent upon language) - largely formal and impersonal - nonverbal information is relatively impossible - the flow of information could not easily modify - personal relationship is of little importance - few opportunities exist for imitation, identification learning - a delay between emission of responses by learners and provision of feedback by teacher

	- feedback can be personal and become immediate reinforcemen	- formal, impersonal, strictly task-oriented and abstract (usually written) feedback which can be beneficial if the learner has strong maturity
Student Support	- automatically built-in	- local backup, needed to minimise drop-out - problem of response time need to be met - occasional face-to-face instruction
Student Assessment Accreditation	- problem of validity and reliability minimised - relatively cheat proof	- increases problems of validity and reliability - cheating is possible
Organisation Administration	- relatively small-scale administration	- management skills in industrialised enterprises are needed

	- education decision can be relatively more flexible - planning, scheduling, operation problems	- education decision may be controlled by mechanised and automated process - same problems only magnified, longer planning times needed
Cost Structure	- labour intensive - related to student numbers - costs do not drop significantly with large numbers	- capital intensive - related to production costs rather than student numbers - costs drop significantly with large numbers

Sources : The materials for the above table can be traced back in various sources. The most important are :

Anthony Kaye and Grevill Rumble (eds.), Distance Learning for Higher and Adult Education, (London : Croom Helm, 1980).

and Gopley and Kahn, "Distance Education and Distance Learning : Some Psychological Considerations", Distance Education, 4, (No. 1. 1983).

Models of Distance Education at a University Level

A typology which distinguishes between autonomous distance learning systems separating as institutions in their own right and those which operate as the distance learning "wing" of a conventional educational institution has recently been developed by Neil. (8) In his study, he indentifies an institution as an autonomous organization on the basis of four key areas of control : finance, examination and accreditation, curriculum and materials, and delivery and student support systems. (9)

(a) University Extension which Provides Distance Education Facilities

University extension services usually takes on several forms. To begin with, distance education unit within a conventional university is specially established to both design and administer the courses teaching at a distance. Examples of this type include : (1) The external studies department at the University of Queensland, Australia; (2) The independent study divisions of the Extension Colleges of Universities in America and Canada; and (3) The distance education unit in the Punjab University, India. Secondly, there are conventional universities which accept both internal and external students. The academic staff of the conventional universities are responsible for teaching both internal and external students. The distance learning materials are devised by the staff who teach internally in equivalent courses. A central non-academic administrative unit is established to administer the external programme. Most Australian Universities carry out this integrated mode. The University of Zambia in Africa also falls within this category. Thirdly, another category of university extension model is mutli-institutional system which accepts both internal and external students. Some external students may be internal students at other institutions. The system also has the

responsibility for the examination and accredition of its internal and external courses. Students from other institutions sit for the same examination but receive accredition from their own institutions. An example of this kind of model is found in New Zealand where the Massey University provides distance education to students at all other New Zealand universities. Students of other New Zealand universities may credit Massey courses towards a degree from their "home" university.

The university extension model mainly aims at relatively smaller populations and makes no attempt to cover the whole country. Course development in this model is less professional and no full industrial procedures take place. Course materials are used to increase educational opportunities in the community, and are considered as substitutes for face-to-face sessions. As the extension services are intended to serve only a small group of students, perhaps 50 to 100, the course designer is often expected to serve as course tutor as well. As a result, the course developed can be in guided didactic approach which can guide the student to facilitate problem - solving learning. Also, since the course designer can also act as tutor, teaching and learning can be conducted in a more personalised way, which may make up for some disadvantages brought on by pre-produced course materials. As far as cost-effectiveness is concerned, Sheath has found out that, on the whole, small-scale extension approach does not differ significantly from the conventional mode of education. (10) As small-scale model tends to favour individual approach, the cost will be certainly higher.

(b) Distance Study Universities

Bascially, the autonomous institution solely and especially for external students are the most common distance study universities. There are two different types of autonomous distance study university. First, the autonomous, centrally controlled distance study universities teach solely at a distance. They develop their own curriculum, design their own teaching materials and determine their own delivery and student support systems. The Open University in United Kingdom and the Everyman's University in Isreal are institutions of this kind. Second, the autonomous, decentralised distance study universities share the characteristics of the preceding group, but have a lower degree of control over their delivery and student support systems, which are administered by associated centres. The Universidad Vacional de Education a Distancia in Spain, and the Central Broadcasting and Television University in China are institutions of this kind.

Besides, the autonomous institution under a management board which also supervizes the management of conventional universities is another model of distance study university. The Tele-university in Quebec, which operates under the University of Quebec Board of Governers, is an example of this approach. The Board also oversees the management of some of the campuses of the University of Quebec.

The distance study universities model makes extensive use of what Peters calls 'industrial methods' to develop distance learning materials by course teams for a large group of several hundreds or even a thousand students. The industrial approach allows a kind of mass production through an economical and professional way to develop pre-produced courses.

One of the main characteristics of this model is the role of course team. According to the first Vice-Chancellor of the Open University, Walter Perry, course team is one of the most important and far-reaching concepts of the UKOU which will become more and more widely used all over the world. (11) The course team approach is usually considered an excellent innovation; but this approach has its obvious limitations. As Holmberg points out :

> "There can be little doubt that a big course team for each course with a number of different specialists is advantageous in providing for the best expertise available for all the various tasks involved. However, it may lead to a de-personalized style of presentation contrary to the style of didactic conversation and may tend to support the presentation of learning matter as ready-made systems rather than guides to problem-solving." (12)

The Problems of Learning at A Distance

Along with its rapid development, distance education has also employed a variety of models of instruction. In systems such as the UKOU, centrally produced multi-media courses are taken by large numbers of students, whereas in most American independent learning projects the approach is to allow individual students to define their own curricula. Obviously, students in systems pursuing different aims will face different problems. The major concern here is the problems encountered in the multi-media mode of the distance learning because it has been proven to be the most cost-effective approach.

(a) Student Autonomy or Institutional Control

In the large scale distance learning system, economic and administrati-

considerations warrant distance learning materials to be made centrally by course teams. It is an institutional based approach which not only gives the course team such a central role, but also gives the distance educators more control of what the student does, how he learns, and in what order he learns. As in the UKOU, the course team decides the content of courses. Thus, what the student learns is actually chosen by the institution. Some have criticised this particular approach because it places so much value on efficiency, cost-effectiveness, product orientation, and market ability of the product at the expense of diversity, individuality, autonomy, and a humanistic approach. (13)

(b) Individual-Oriented or Group-Oriented Pacing Mechanisms

In distance learning, pacing takes the form of group-oriented or individual-oriented pacing mechanisms. (14) Older forms of distance education usually avoided pacing so as to give the student greater flexibility. For the large scale and complex distance learning systems, they tend to adopt group-oriented pacing mechanisms such as fixed dates for course enrolment, broadcasts, assignment returns and tutorials. A frequent reason is to facilitate the use of broadcasting networks to enrich and expand instructional possibilities. Television and radio programmes become important elements in this pacing strategy.

In general, students learning at a distance might prefer individualised pacing which gives them much greater control over the arrangement of their study time. However, the costs and administrative arrangements required for the implementation of this pacing strategy, as well as the constraints it imposes on the system, often make the option impracticable. It is

common practice for distance learning programmes to encourage students to continue with a course by using some form of group pacing, although it is understood that some constraints will be imposed on the students. As Daniel and Marquis point out, pacing is a question fraught with ideological issues and pregnant with practical administrative problems. (15)

(c) Learning Activities : Independent Or Interactive

The essential challenge for distance learning systems is to achieve a cost-effective balance between independent learning and interactive activities. Independent learning which allows economics of scale in the production of materials, gives student more flexibility. Interactive activieies are costly to arrange. It may also decrease flexibility for the student. However, it has the advantage of bringing the student into contact with other people and give him more active involvement. (16) As Sewart suggests, the interactive support covers the way in which the student as an individual fits the new knowledge into his own peculiar pre-existing framework and into his everyday life style. (17)

Clearly, an effective distance learning package should not be limited solely to the dissemination of information. It should embody some aspects of interactive activities. However, there is an overwhelming tendency within the field of distance education to offer learning materials from the standpoint of the institution teaching at a distance, rather than from the standpoint of the student learning at a distance. Again, Sewart points out that for obvious academic reasons distance learning packages embrace the subject matter, and, for equally obvious economic and practical

reasons, few of these packages embrace the function of interactive support. (18) This goes against a widely accepted notion that education is primarily a learning process on the part of the student rather than an instructional process on the part of the teacher. Undoubtedly, the inclusion of properly planned interactive activities can be a help to the student learning, although they sometimes involve a sizable increase in cost.

The Role of Media in Distance Learning System

In order to provide various stimulus and reach a larger number of students more effectively, distance learning system employs a wide range of instructional media and the new technologies of communication.

(a) The Role of Media in Education

Media is seen as means by which student learning can be developed. It is commonly held that it can enhance clarity in communication, provide variety in strategy, extend scope in experience and sustain motivation in learning. According to Hortin, (19) the advantages of using modern media in education are as follows :

(1) They can make education more productive.

(2) They can make instruction more powerful.

(3) They can give instruction a more scientific basis.

(4) They can make learning more immediate.

(5) They can make learning more interactive.

(6) They can store information until the student is ready to use it.

(7) They can make education more individual.

(8) They can make access to education more equal.

The results from several studies also favour, specifically, the use of audio visual media in education. Bruner points out that, there is evidence showing that teaching concepts in a dual way (visually and verbally) leads to a greater ability to apply the knowledge to new situations. (20) For Jamison, he demonstrates that since understanding involves imagery, a greater use of visual methods may help to facilitate learning. (21) Moreover, according to Fleming, a number of experiments have shown how imagery accompanying verbal presentation helps the retention of the information. (22)

(b) The Advantage of Using Audio Visual Media in Distance Learning System

The role of media in classroom learning is to supplement the teacher. In distance learning situation, which entails an indirect communication between teacher and learner by means of pre-produced learning packages, media take on a much more important role.

With the rapid development of modern technology and the increase in demand for education, audio-visual media is fast becoming the impetus for the development of distance education because of its obvious advantages : The first advantage of using media is that it promotes distribution. One of the main tasks of distance learning system is the distribution of knowledge. The use of audio-visual media can help the distance learning system to reach more students and free them from the constraints of time and place. For example, broadcasting distribution enables all

in the community who wish to benefit from distance study to reach the learning materials. The effective distribution can also help to increase student enrolments, as the easy access to learning materials attracts more students to learn at a distance. Second, some media are cost-effective. For example, a well-designed audio cassette, integrated with printed words, is a low-cost, highly effective teaching medium for self-paced study, with much greater flexibility in allowing a variety of teaching strategies. Third, in distance learning situation, where isolated students work alone at home, without a personal tutor or fellow students immediately available, audio visual media can help to facilitate effective learning. For example, visual image with movement presented by television can help to bring reality to the student and is helpful for learning practical topics. Affective learning is difficult to stimulate in distance learning situation where students are separated from teacher and fellow students. However, bits of dialogue, drama or even tone of voice in speech from a radio programme or an audio tape can often challenge students to ponder their opinions, more readily than can printed words. Fourth, in distance learning situation, it is generally agreed that student motivation and concentration are difficult to sustain. As audio visual communication can be more direct, friendly and personal than printed word, audio visual media can act as motivator which can reduce isolation and anxiety. In addition, regular broadcasting programmes can help to sustain student motivation. Finally, with cassettes or computer-assisted programs, students can try out answers, and get feedback on their performance. Feedback from cassettes is not immediate but it can offer an alternative channel for two-way communication. For computer-aided learning, feedback is pre-

programmed and usually to a certain extent in standard form. Modern technologies such as CYCLOPS (23), however, create more interaction between tutor and student at a distance.

Roles of Television as a Medium of Instruction

As suggested by Perrin, television can be used to improve the quality of instruction in at least four areas (24) : To begin with, television is sometimes used to enrich what the teacher is already trying to do. It implies that the role of television is not essential or crucial, but to provide content and experiences beyond those required in the curriculum. In this context, television is only used to provide enrichment and increase the chance of learning being more effective. Secondly, television is an effective channel for providing learning resources. Most educators would like to combine television programmes with other teaching materials. Television is more frequently used in selected learning situations to which it is peculiarly adaptated. Television can provide learner with access to resources which would not be easily accessible to them in other ways. Television can easily bring the learner to any location in the past, present and future, in the realms of fact or fiction, reality or fantasy. Even though other ways of presentations may accomplish the same objective, television can do it more efficiently, i.e., in less time, at lower cost or result in a greater proportion of learner successes. Thirdly, television instruction has been used as an alternative to traditional classroom instruction. It is used to substitute student-teacher interaction in settings other than classrooms --- in study areas, self-instructional laboratories, even at home and in dormitories. When television is used for direct teaching, core content and method of instruction are embodied in the television programme itself. Lastly, television is used for

self-evaluation in mirco-teaching and in many diagnostic situations. Also, television may be used to present common experiences, either live or recorded, for group discussion and evaluation.

Moreover, experimental studies illustrate that television materials make positive contributions to the development of cognitive, psychomotor and affective learning. As suggested by Himmelweit, television programmes can develop a critical approach to a problem and stimulate discussion. (25) Clark (26), Plese (27), Thompson (28), Green (29), Mulac (30), McConkey and O'Connor (31) all demonstrate, in different studies, that television is useful in developing psychomotor learning. After reviewing a considerable amount of literature, Watkins concludes that students can develop affective learning from television materials. (32) This reinforces Baron and Meyer's finding that television can effectively help students acquire appropriate societal norms, develop a healthy self-concept and so on. (33)

In tertiary education, learning involves using the principles of a subject matter, not just recalling facts. The effectiveness of students' learning is determined by their comprehension of the basic principles of subject matter and their ability to apply these principles to new problems. Television as a teaching medium can provide real-world situations for the practice of applying principles to new problems. As in the UKOU situation, students are expected to analyse the television materials, using the theoretical or analytic constructs provided in the the correspondence text; to the "real-world" situations observed in the television programmes; to generalise or draw conclusions from the specific instances in the programmes; to test, evaluate or compare the applicability of general principles in the text to the "real-world" instances found in the television programmes.

Nature and Purpose of the Study

Purpose of The Study

In Hong Kong, the problem of how to meet the demand for higher education has long been with us. The provision of open education seems to be a possible answer. In addition to their conventional roles, the existing tertiary institutions are expected to take an active part in the development of open education. Currently, a range of courses which can be linked to open education are offered by institutions of higher learning. (34) While further development of the existing manpower and facilities is imperative, the institutions can, at this stage, experiment with distance learning in some of the courses which are presently offered. Before incorporating distance education into the main stream of teaching, however, the institutions need to study the credibility of methods pertaining to learning and teaching at a distance, reflect on experiences of distance learning around the world, and produce distance learning materials that will suit local needs.

Although the establishment of an open university modelled on the UKOU is not recommended, the experience of the UKOU is useful when planning for the development of distance education in Hong Kong. Its evident success in using audio visual resources is generally considered to be of interest to those in other countries concerned with the provision of distance education. It is thus the intention of this study to illuminate the roles that audio visual resources have played in the development of distance education. Special emphasis will be given to the use of television in the UKOU, as it is probably the most widely known and influential model of the use of television in distance education.

Significance of The Study

In its short existence since 1971, the UKOU has attracted a considerable amount of interest from other countries. Its deployment of a wide range of audio visual resources in distance education also makes it a natural choice for the purpose of this study. The experience of the UKOU should provide valuable insights for the future development of open education in Hong Kong. Besides, the UKOU has always closely monitored the effectiveness of its production and delivery of learning materials and has introduced many improvements. Whether or not distance education is developed in Hong Kong in the near future, the UKOU's experience in using audio visual resources will give insights and practical guidelines for audio visual instruction in existing university teaching. Therefore the focus of this study is on learning from the UKOU for the necessary improvement and future development of the tertiary education in Hong Kong.

Scope of The Study

This study is an attempt to examine the role of television as a facilitator of learning at a distance in the UKOU context. Special emphasis will be placed on the strategies that have been used from the inception of the UKOU in 1971 to the present. The working hypothesis of this study is that television will be very useful for distance learning provided certain other criteria and strategies of instruction are used at the same time.

(a) The First Theme

The first theme will establish the role of television, as a medium-of teaching in distance education in general, and in the UKOU in particular.

With the rapid growth of new information technologies, course designers have more audio visual media to choose from than ever before. There is also an urgent need for a comprehensive review of the particular strength of these media in the educational context so as to provide course designers with solid guidelines for choosing the appropriate media for their tasks.

(b) The Second Theme

In addition to identifying the potentials of television in distance education, strategies for facilitating student learning through television will also be examined. It is probably true to say that television can be used effectively for learning purposes in distance education, but not until it can overcome some obstacles. The second theme of this study will be focused on the kinds of constraints that the UKOU confronts in using television as a medium of instruction, and how the UKOU attempts to fully exploit television as an instructional medium at a distance. Among the strategies used by the UKOU, the application of video cassettes brings a new dimension to the meaning of learning through television. Therefore, the educational implications of video and its roles in the UKOU will also be one of the major concerns in this study.

(c) The Third Theme

The practical experiences of the UKOU in using television as an instructional medium should be useful to anyone concerned with the development of distance education. Thus, this study will also examine the implications of the UKOU experience on the design and production of distance learning materials in the Hong Kong situation.

ANALYTICAL APPROACH

At the UKOU, the criteria for using television are shown to have employed a pragmatic approach based on experience and programme evaluation, rather than a general theory of instructional media. The aim of this study is to build up a deeper understanding of what makes an effective instructional television programme through an analysis of television learning in the UKOU. Its major concern is to look for general principles which can be applied to the development of television learning in the Hong Kong situation. The analysis will be based on primary and secondary sources of information. Secondary sources of information used in this study are those obtained from journal articles on television learning in both higher education and distance education. The primary sources of data can be traced back to "policy papers" issued by the UKOU authorities, research papers presented by the Audio-Visual Research Group of the Institute of Education Technology in the UKOU, and UKOU television programmes available in Hong Kong.

On the basis of the secondary sources of information an attempt is tried to construct a theoretical framework for understanding how television differs from other media in the teaching role, when television should be used as teaching medium, and how television learning can best be developed. In the light of the theoretical framework, the role of television as an instructional medium in the UKOU context will be analysed.

While the secondary sources of information contribute to build up the theoretical foundation for understanding television learning, primary sources of information have contributed to the research of several major areas in this study. The review of the policy paper by the UKOU provides an understanding of

the context in which the UKOU television programmes operate. While the official information concerning budget and resource allocation illustrates the importance of television materials in the UKOU, the practical guideline to course production demonstrates the UKOU's strategies for the development of effective television learning. A large number of articles and papers have been written by the Audio Visual Research Group in the UKOU. From these papers, information has been extracted and analysed, which pertains to the following areas : (1) identification of problems related to learning through television in the UKOU and proposals of possible solutions of these problems; and (2) illustration of factors affecting the effectiveness of television learning, such as transmission time, student's awareness of the educational purposes of the programme and the control characteristics of broadcasting television.

For the television programmes, the focal point of this study is on the degree of consistency in the strategies used for these programmes. Moreover, an attempt has been made to analyse whether the strategies used are in compliance with the official guidelines to course production.

Limitations of the Study

Due to its scope and the availability of relevant information, the fact that this study carries many limitations is obvious. Among these limitations, the following five are perhaps the most important:

To begin with, the study is confined to the development of television learning in the UKOU. It does not examine learning through text or other kinds of audio visual media. Print, television, audio-vision, tutorials, home kits, assignments, Summer Schools, telephone conferencing, computer-aided learning counselling, etc., all contributed to the working of the UKOU system. As the UKOU is a multi-media system, a study which examines only learning through television cannot really draw a general picture of learning through media developed by the UKOU.

Secondly, while the UKOU attempts to exploit various modern technologies to increase the capacities of television as a facilitator at a distance, this study is only confined to the application of video cassette.

Thirdly, owing to a dearth of literature on other models of university distance education systems, this study is confined to the practice in the UKOU, which is only one of the many distance study universities in the world. It does not include the other distance study universities or other models of university distance education systems, even

though the study of the university extension model would also be significant for the current Hong Kong situation.

Fourthly, while education and society of Hong Kong share some common characteristics with that of the United Kingdom, they also possess peculiar features of their own. Thus distance learning through television may be a blessing to Britain, it may not necessarily be suitable to Hong Kong, because of its different economic and education condition.

Finally, this study relies purely on the analysis of printed and visual information gathered on the educational roles of television in the UKOU. It does not rely on empirical findings involving first-hand observation, such as interviewing the UKOU staff and student, collecting information on programme evaluation through surveys, and visiting the UKOU headquarters. To say the least, the information and data obtained from some of the primary sources, especially those research papers by the UKOU faculty members, could be biased. It is therefore possible that research findings presented in the UKOU papers were interpreted by the authors to provide justifications for the existence of certain television programmes.

CHAPTER TWO

THE ROLE OF INSTRUCTIONAL TELEVISION IN EDUCATION AND IMPLICATIONS FOR DISTANCE EDUCATION

Many attempts have been made in the past by media specialists to find out what really are the particular virtues of television as an instructional medium. As television is an expensive and demanding medium, it appears that it should only be used in educational situations that make effective use of its strengths. Educators need to identify and fully exploit the unique educational characteristics of television if a rational choice of instructional media is to be made. The important question for course designers of distance learning is when television can better contribute to learning than other available means. On the basis of the above question, the prime consideration for using television will be : (1) why television should play a major role in distance education; and (2) how the process of learning from television is different from learning through any other medium.

Why Distance Education Should Use Television

Access

Obviously, broadcasting television can distribute knowledge to many students otherwise out of reach. Broadcasting television can reach large populations and is therefore considered more appropriate for distance learning. Besides, television is a familiar medium which does not demand literacy skills.

For a large number of people, television is easy to operate and provides a pleasurable experience. As a result, television can help to recruit or attract new students. Bates points out that even if there were no difference in the process of learning from television or books, the accessibility and liveliness of television would still contribute to distance learning. (35)

Communal Feeling

The communal feeling of broadcasting television can help to reduce the feeling of isolation for learning at a distance. Knowing that others are also watching the same programme at the same time, students may feel that they also have many fellow students learning together with them. (36)

Reducing Class Difference

It is also argued that compared to learning from written materials, learning from television may cause learning disadvantages of working class students to become less serious. (37) Bernstein suggests that working class people employ a 'restricted' language as opposed to the more 'elaborated' language code used by the middle class. Significant numbers of studies have demonstrated that verbal abilities are related to socio-economic status. However, such class differences in the use of visual processes have not been established. Dallos also argues that there is probably less class difference in television viewing (possibly a higher viewing rate amongst the working class population). The use of television in the UKOU, he suggests, actually helps to provide higher education to the working-class people who are generally deprived of the opportunity.

Two Interpretations of the Strength of Television as a Facilitator for Learning

With regard to the comparison of effectiveness between television and face-to-face instruction, Stickwell in 1963 showed that in 80 per cent of the comparisons reviewed, no significant differences were found. (38) At a later date, Chu and Schramm in 1967 also concluded that intermedia comparisons did not significantly favour the use of television. (39) Besides, Schramm alone also examines the early experiments which compare television with face-to-face instruction. The results of these experiments point out that when other variables are adequately controlled, there is no significant, or consistent difference when learning from television is compared with more traditional forms of classroom instruction. (40) On the other hand, after reviewing the early experiments about learning through television, Anthony Bates claims that the early experiments do not measure the most importnat differences between learning from television and face-to-face instruction. He points out that few of these comparative studies try to discover whether the specific attributes of television make it especially effective for developing student learning. (41) This reinforces the view that attribute of media, not media per se, should be considered in media studies. (42) On the basis of the above view, both Bates and Salomon describe the unique educational potentials of television as follows :

A variety of representational modes

Regarding the development of learning through media, Olson and Bruner make the distinction between content (or the presentation of knowledge) and mental

skills (i.e. activating, or using that knowledge). They argue that content can be presented through any medium, but mental skills are more dependent on media for their development. (43) Moreover, Bates is convinced that different media present knowledge in different ways and assist in the development of different mental skills. (44) He points out that television is only one way through which content can be presented but that since television combines a wide variety of representional modes, it stands out among the variety of media. (45) The general audio-visual characteristics of television, as pertained to different modes of representation are listed below. (46)

TABLE II : GENERAL CHARACTERTISTICS OF TELEVISION AND MODES OF REPRESENTATION

TV Characteristic	Modes of representation
Continuous sequential	Movement, animation, slow motion, representation of changes over time
Spatial	Representation of spatial relationships; (combined with camera movement : representation of three dimensions); physical models; graphical representation
Variation in size (zoom)	Magnification; exploration of detail; attention focusing
Storage and recording	Recording of people, places and events; historical archives; accessing new learning resources (people, places)
Editing	Selection; re-ordering; restructuring
Dramatisation	Restructuring of events; representing human relationships
Aural	Words; noises; music - emotive aspects

Symbolism	Ambiguity
Multi-channel	Simultaneous viewing and listening; focusing; interpretative
'Live' (broadcast TV only)	Immediacy; news and current affairs; sport

A variety of symbol codes

Salomon suggests that media should be described in terms of the symbol systems they employ. Each medium has a wide range of symbolic codes at its disposal, and every combination of such codes may have different effects on mental skills or processes. These cognitive effects, in turn, determine the way the material is processed and learned. According to Salomon, there are three different kinds of symbol systems (47) :

(a) Digital systems where message is transmitted by written language, musical notation, mathematical symbols. These systems entail discrete and unambiguous elements which can be organised in lawful ways.

(b) Analogic systems which are made up of continuous elements that nevertheless have recognised meaning and form. Examples would be voice quality, performed music and dance.

(c) Iconic systems which use pictorial presentation, with a variety of possible visual experiences and meanings. They are much more open to interpretation, since the relationship between the symbol (picture) and what is represented is ambiguous.

Text without illustrations only contains digital codes; radio and audio tapes

provide both digital and analogic codes, but not iconic. Tape slide programmes employ all three codes, but not motion. Television and sound film, therefore, remain the only media that can provide all three codes as well as motion.

In a serious of ingenious experiemtns, Salomon demonstrates that symbol systems can develop certain cognitive skills in one of these ways : by activating already existing mental skills, through providing practice in their use; by short-cutting (simplifying) difficult mental processes, through symbol systems representing knowledge in a new way; and by supplanting or modelling the mental elaborations required -- i.e. demonstrating to the learner how to move from point A to point B -- to incorporate knowledge. Such cognitive skills are : ability to separate detail from background; ability to predit the folded-out shape of a solid object; ability to place a series of pictures in the correct sequence for a story; remembering objects presented pictorially; putting together parts of a picture accurately to make a whole picture.

Media's symbolic codes call upon mental skills or they may supplant them. These are the effects of the media. By calling upon or supplanting mental skills, the media may facilitate the acquisition of knowledge or even the mastery of skills (48) Basic to Salomon's idea, different media have different information potentials by virtue of the symbolic systems available to them. Television can be described as a very rich and powerful medium, since it uses a wide variety of sounds, pictures, colour and movement. It is the symbolic codes of television into which an idea is coded that makes the largest and most important difference in learning from television. Television has some unique educational potentials which can facilitate learning. These potentials are inherent in television's symbolic codes.

On the basis of the discussion on symbol systems, television has several unique educational potentials not found in other media. (49) First of all, television is especially powerful in presenting a single case representing a relatively abstract class or category. In other words, television can provide illustrations which examplify a general idea, concept or process. Secondly, with its rich audio visual characteristics, television is especially strong in providing simplified substitutes of a complex process or event. Television can present substitutes for processes which are so complex (or extended over a long time) that one could not really learn their essential nature without simplification and highlighting. Thirdly, by the effect of dramatisation, television can simplify and highlight real-life situations. With the help of editing technique and specially designed teaching strategy, television can guide the students to concentrate on particular teaching points. Moreover, dramatisation is valuable because mere explanations or texts sometimes involve students in highly complex interpretations of situations. (50) In fact, the potential of dramatisation in television programming was demonstrated by Trenaman in 1967. Trenaman evaluated 70 programmes which included over 1600 people, and identified the factors that influenced adult's comprehension of BBC programmes with a general educational purpose. (51) He found that a high degree of personification and dramatisation did improve considerably the intelligibility of programme, particularly for those people of low occupational and educational status. Fourthly, in the process of learning, students often map out complex and abstract ideas onto specific images which they either process or which they can conjure up in their minds. In the learning of complex new ideas, television can perform the vital job of explicitly providing the students with appropriate images which they cannot generate on their own, but from which they can supplant their own self-generated images. This function of visual supplantation is particularly useful in the facilitation of

learning when the images thus introduced are of ongoing process. For example, computer animation in television programmes is particularly helpful to illustrate what happens to the shape of a mathematical function represented graphically when the values of that function change. The graph moves slowly and changes shape as the values are changed. In this way, the television material provides a visual supplantation to help the students know about the mathematical function.

It is clear that the representational modes and symbolic codes inherent in television enable it to facilitate learning. In distance education the educational potentials of television make it especially useful for students learning at a distance, as their learning mode depends mainly on indirect communication through media.

CHAPTER THREE

THE CONTEXT OF TELEVISION LEARNING IN THE BRITISH OPEN UNIVERSITY

The Evolvement of The British Open University

According to Walter Perry, Vice Chancellor of the UKOU from its inception, the concept of the UKOU evolved from the convergence of three major educational trends after the Second World War. (52)

The Demand of Adult and Higher Education in Britain

After the Second World War, an significant increase in the United Kingdom's population led to the demand for further expansion of higher education in the early 1960s. The demand was also brought about by an increase in proportion of school leavers who had obtained good school leaving qualifications and wished to go on to higher education. In the early 1960s, only 6-7 per cent of school leavers progressed each year to any form of higher education (including teacher training and technical education), a proportion which compared unfavourably with other developed countries. The need for more higher education was amply illustrated by the enrolment figures in the University of London External Degree programme, which had 20,000 United Kingdom students, of whom 7,000 studied by correspondence. A further half a million people were also taking correspondence courses provided by a variety of institutions.

The demand for higher education was articulated in the Robbins Report (1963), which stated that there was an untapped pool of adult talents in the

United Kingdom who could benefit from a university education but had 'missed out' earlier in their lives. The Report proposed an increase in the number and size of conventional universities so as to meet the demand for higher education. The Robbins Report actually echoed an earlier claim in the 1959 Report on Scientific and Engineering Manpower in Great Britain that the educational system had to play a major role in satisfying the society's need for skilled manpower by improving industrial and occupational training.

At the same time, there was a growing recognition that the existing provision for the education of adults was deficient in at least two ways. First, there was lack of opportunities available to adults who wished to embark on vocational courses at the higher education level. Second, adult education courses failed to attract those whose initial education had been underprivileged and deprived. Admittedly, there were exceptions to the general rule. The University of London offered external degrees, but since it was only a system of examination, degree seeking adults had to make their own arrangements for tuition.

For some universities which had extra-mural departments, their primary aim was to extend the cultural influence of the universities to the adult population in their immediate localities. Their clientele was primarily middle class. This was also true of the Workers' Educational Association, which offered courses that were primarily non-vocational. Moreover, in the climate of 1960s, it seemed unlikely that conventional universities would have extended their activities to include adults who would like to study part-time, although the Robbins Committee Report had urged them, as short term measures, to offer first degree courses in the evenings and to establish correspondence programmes.

The Political Objective of Promoting The Spread of Egalitarianism of Education

In the mid 1960s, the Labour Party attempted to find ways of providing more educational opportunities during one of Britain's financial crises. On 8 September 1963, the then Labour Party Opposition Leader, Harold Wilson announced that his party was making plans for a "university of the Air" which would offer distance education. That project became, of course, the Open University. For Harold Wilson, one factor for the need of this project was an increasing awareness that the existing educational system was elitist. Under the elitist system, many adults was said to have been deprived of the chance to realise their potentials fully. The phenomenon of unequal educational opportunities was considered, for example, in the 1959 Crowther Committee Report, in the Robbins Report, and in an influential book by Jackson and Manden (1962).

The Robbins Committee on Higher Education had reported that of those entering institutions of higher education in 1961, 45 per cent came from families where the father was in a higher professional occupation and only 4 per cent from families where the father was a manual worker. The aim of the UKOU, as stated by Harold Wilson at Scarborough in 1963, was to offer opportunities "to those who for one reason or another have not been able to take advantage of higher education." (53)

This aim was reiterated in the Report of the Planning Committee in 1969 which said that the main objects of the UKOU were "to provide opportunities, at both undergraduate and postgraduate level, of higher education to all those who, for any reason, have been or are being precluded from achieving their aims through an institute of higher education." (54)

These aim were also taken up and elaborated upon by Lord Crowther, the Open University's first Chancellor, who stated in his inaugural address delivered on 23rd July 1969:

> "The first and most urgent task before us is to cater for the many thousands of people, fully capable of a higher education, who, for one reason or another, do not get it, or do not get as much of it as they can turn to advantage or as they discover, sometimes too late, that they need".

The Growth of Education Broadcasting

In the 1960s, the potential of broadcasting for education gained world-wide attention. It was generally recognized that the principal adult education force might be the general television output. Obviously, broadcasting improves people's knowledge of the world, raises cultural standards and provides educational stimulation. For example, current affairs and documentary programmes keep the general population up to date with political, economic and technological developments. It was the potential of broadcasting which first led Harold Wilson to consider the establishment of the UKOU, the initial concept of which was significantly called the 'University of the Air'. When Harold Wilson proposed the use of broadcasting in education, he assumed that broadcasting could be used both as a means of educational expansion and as an effective teaching medium in its own right. (55)

The Context of Television Learning at The British Open University

The Innovative Nature of The UKOU

In the 25 years since its establishment in 1971, the UKOU has won acclaims over the world for revolutionalizing the idea and practice of higher education. It is an independent, self-governing distance-teaching institution which awards its own degrees, diplomas and certificates. To those with only trivial knowledge of the institution, the UKOU is merely one of many alternative to conventional higher education. However, the UKOU is a very complex system within which a large number of sub-systems are interlocked. Some of the sub-systems have initiated innovative changes, each presenting an unique alternative to conventional practice. Other sub-systems are very traditional and present no alternative whatsoever.

When the UKOU was established in 1971, it was a radical innovation in many ways. Among the major innovations introduced by the UKOU, the abandonment of any requirement for entry qualifications is the most important. This "open admission policy" has attracted students from all walks of life. In 1983, more than 45,000 people applied for the 24,500 places available. Applications are accepted on a first-come, first served basis -- as long as the applicant lives in the United Kingdom and has reached the age of 18. A large proportion of UKOU students join the University with less than the normal university entrance qualifications. Figures show that of any year's intake of registered students, over 50 per cent will eventually graduate. Up to 1983, more than 57,000 students have obtained an ordinary bachelor degree and nearly 9,000 of them have gone on to acquire an honours degree. (56) Besides, the UKOU attempts to

integrate a variety of communication media and employs them in a distance learning system. When learning materials of the UKOU are being developed, the basic objective is to try to ensure that all adults in the country will have an equal chance of studying with success. The entire basic system is devised as a self-learning package aimed at allowing adults to study in their own homes. In this way, it is hoped that learning is facilitated by pre-produced multi-media packages. In addition, a certain amount of face-to-face instruction will be provided to support the self-learning packages. Another major UKOU innovation is the "course team" approach to course design. The UKOU courses are devised and controlled by a team consisting of academic staff, educational technologists and BBC producers, all of whom have an equal voice in determining the syllabus of the course, the method of presentation, and the choice of medium through which each element of the course can best be transmitted to the students.

The Context In Which UKOU Students Learn

(a) Institutional Characteristics

The UKOU is an autonomous, degree-awarding institution, with the same status as other British universities. It is directly funded by the Government, with a budget in 1982 of over £50 million. The UKOU has a unique partnership with the BBC. The BBC has set up the BBC/Open University Productions (hereafter the BBC/OUP) specifically to provide services to the UKOU. The BBC produces television, radio and audio cassette materials in conjunction with the UKOU staff. In Autumn 1981, a brand-new, £5-1/2 million studio complex became operational on the University campus, and is managed by the BBC on the University's behalf.

The Government, through its grant to the UKOU, pays the full cost of the BBC's services to the UKOU. The majority of the UKOU production costs are thus fixed and must be paid, irrespective of the number of programmes made. In other words, reduction in the number of programmes produced does not lead to an equivalent saving in expenditure. For the transmission of programme, the UKOU pays the marginal cost. It is approximately £250 for one transmission of each television programme.

(b) Teaching System Characteristics

Unlike most other British universities, the UKOU students can achieve their degree from a range of around 130 courses, choosing what they want to study from year to year. Courses are rated as 'half-credits' or 'full-credits', depending on the amount of work involved. All courses last for nine months. Six credits are needed for an ordinary degree, and eight for an honours. A credit requires approximately 12 hours per week of study over a 32 week period, making it roughly 400 hours minimum per credit. It usually takes between three and six years to achieve a degree.

There are six main study areas or faculties : Arts and Humanities, Education, Mathematics, Science, Social Sciences and Technology. There are also a number of courses which are topic-based and range widely across subjects and disciplines. Each of the faculties has a foundation course for the first year students. After the foundation courses, each faculty offers a range of courses that represent an ascending order of understanding. All foundation courses and some others at higher levels include a one-week residential summer school.

(c) The Learning Mode

The UKOU students learn mainly through a combination of specially printed correspondence texts, television, radio and/or audio-cassette, and for some Science and Technology course, home experiment kits. Throughout the course optional face to face tuition is available in a national network of about 250 study centres based in local institutions of education. Students can meet for discussion with each other and with tutor-counsellors and course tutors. Each student has a correspondence tutor, who both marks assignments and advises the student. Students gain credits through the combination of tutor and computer-marked assignments during the course, and an end of course examination.

The basic UKOU student work pattern is spare time study at home. Their learning pattern is independent, self-motivational, and relatively isolated. However, the UKOU has organized some guidelines on distance learning which aim to help students develop effective learning strategies : (57)

(1) setting of personal study objectives;
(2) developing personal confidence in an ability to study;
(3) planning and organising study time and study strategies;
(4) developing study skills involved in learning from reading, listening, viewing, group discussions and practical work - including preparation, note-taking, revision and so on;
(5) developing the more specific skills involved in learning to provide suitable answers, in the appropriate format, to the assignments and examination question (essays, short-answer tests, multi-choice tests,

projects .....) set by the institution.

The UKOU's Interpretation of the Development of Student Learning

The UKOU believes that the development of learning at the undergraduate level should be described in terms of three basic levels of knowledge and understanding. (58) First of all, students are required to develop the ability to recognize and recall basic facts and principles (e.g. state Euclid's Parallel Postulate, describe Copper Sulphate Crystals). At the second level, the emphasis is placed on the development of the ability to explain certain phenomena or to do certain tasks (e.g. show how to make Copper Sulphate Crystals; if two angles of a triangle add up to 130°, calculate the third angle). For the third level, the major concern is the development of the ability to justify an explanation or action. Students are asked to put forward reasons for what they are doing (e.g. explain the change in molecular behaviour as a substance changes from solid to liquid and then gas under the application of heat, or prove that the angles of Euclidean triangle add up to 180°).

As the development of learning progresses from level one to level three, the emphasis is shifted towards helping students to take more responsibility for their own learning. The UKOU expects students to go beyond a passive acceptance of stimuli by actively seeking to apply the knowledge gained to new and different situations. In the same vein, the development of learning materials is also aimed at helping students to develop cognitive skills of discovering and individual problem solving.

Media Learning in the UKOU

(a) The Use of Audio Visual Media in the UKOU

At its inception, the teaching system of the UKOU is best known for its innovative characteristic. It is the correspondence text which forms the vital nucleus for a structure of integrated audio-visual programme. Print is the prime medium in terms of the proportion of course materials and the proportion of student study time. Broadcast and non-broadcast audio-visual media are generally used to support print (e.g. to convey case-study material, to show experiments), rather than to act as the principal expository element of a course. However, as a distance teaching institution, the UKOU has become highly dependent on audio-visual media to perform functions which in a more conventional context would be handled by live, face-to-face tuition.

In the 15 years that the UKOU has been operational, the use of audio-visual media has increased enormously. The budget of the UKOU has increased from £2.25 million to £60 million, its student numbers from 25,000 to 100,000, its range of courses from 4 to 130. Television transmission time has increased from just under 4 hours a week to over 35 hours a week. Up to 1982, the UKOU has produced, jointly with the BBC, over 3000 television programmes and a similar number of radio programmes, plus over 500 cassettes and 100 records. In 1980 alone the University spent £8 million, 16 per cent of its total annual budget, on producing and presenting broadcast programmes (including radio and television) and in that year it transmitted about 1600 television and 1600 radio programmes. (59) In 1983, television production and transmission alone cost £10 million. This constituted more than 15 per cent of the University's total annual budget. (60) Although printed material is the prime medium, television

programmes are considered instrumental in developing student learning. The scale of investment in, and production of, television materials at the UKOU is a reflection of the importance attached to it.

In the teaching system, television programmes form an integral part of most courses. Foundation courses tend to have more television than higher-level courses. At the moment, students will get one 25-minute television programme a week (32 in a full course); however, they may occasionally get only one television programme a month. There are a few courses (about five per cent) with no television programme at all.

(b) Media Studies and the UKOU Experience

Schramm and Heidt proposed that, depending on different teaching contexts, some media may be more suitable for the specific teaching tasks. (61) This idea is supported by experience at the UKOU. In that distance teaching institution, there are many pedagogical functions which would be difficult to achieve without the help of audio-visual media. Obvious examples include laboratory demonstrations, field trips and lectures by eminent speakers. The difficulties and cost of providing these functions live are so great that audio-visual media provide the only feasible alternative.

As far as audio-visual media is concerned, the experience in the UKOU suggests that whereas there may be no difference between the effectiveness of alternative media on a priori grounds, the teaching context in which they are used can have a significant effect. Research concerning the UKOU has shown that students prefer the control characteristics of non-broadcast media, since broadcast media are comparatively inflexible from the

learner's point of view. Programmes may be transmitted at inconvenient times, not often enough, in disagreeable pace, and no provision for questioning. Certain non-broadcast media such as cassettes, do not suffer from most of these built-in control limitations. Audio or video cassettes can be used whenever and as often as the student wishes. They can be divided into component parts, replayed in whole or part, and so on. For the UKOU experience, as Gundin finds out, when radio programmes are transferred unchanged to audio-cassettes and mailed to students, students' ratings of the programmes increase quite considerably. (62) Durbridge also reports that the UKOU students prefer the flexibility of cassettes versus broadcast programmes. (63) Also, research by Bates and Gallagher in 1977 for the UKOU supports the view that when several media are used in conjunction (in the UKOU's case, print, television, radio, home-experiment kits, face-to-face tuition, correspondence tuition), the same content is frequently presented through each medium, but some media seem to be better than others in developing certain skills in using or elaborating on that content. (64)

The Aptitude Treatment Interaction model (hereafter ATI) suggests that different media will suit certain learners better, depending on their interpretative skills. However, it is not practical for the UKOU to match different types of learners to different teaching media on the basis of their specific learning capabilities. From the point of view of the UKOU course teams there are two difficulties with the ATI approach. Firstly, the UKOU is a mass-teaching institution. In an organization of this size, it has not been possible to tailor course materials to suit the needs of individual learners. Secondly, it takes about three years to design one course. Designing alternative teaching strategy of the same material

would not be cost-effective.

However, much of the previous media studies is not directly relevant to the situation in a distance education system such as the UKOU. Intermedia comparison and the media taxonomy approach have suggested that there are no significant differences between the teaching effectiveness of different media. Nevertheless, the success of the UKOU depends mainly on the use of audio-visual resources. The question facing most the UKOU course teams, is how best to use audio-visual media within a large and complex multi-media distance learning system.

Specific Roles for Television in the UKOU

Since television production is a very expensive undertaking and the transmission time available to the UKOU is limited, the UKOU establishes a system to control the allocation of television resources. The course teams who want to produce television programmes must indicate the use of television is to achieve objectives which could not be achieved as economically, or as conveniently in any other way within the UKOU's teaching system. A list of "appropriate teaching functions for television" has been drawn up by the UKOU. (65) These functions are grouped into four main categories as follows :

(a) To overcome some of the difficulties inherent in distance education :

(1) To explain or demonstrate practical activities that students are to carry out themselves (e.g. home experiments, interviewing, project work).

(2) Through performance, to demonstrate methods of techniques of dramatic production, or different interpretations of plays and novels.

(3) To teach sketching, drawing or painting techniques (e.g. the sketching of three-dimensional engineering components, the construction of fresco, the drawing of perspective, etc.)

(b) To reduce the time and effort required by students to master the learning by using sophisticated television production techniques.

(1) To illustrate principles involving dynamic change or movement.

(2) To illustrate abstract principles through the use of specially contructed physical models.

(3) To illustrate principles involving two-; three-; or n-dimensional space.

(4) To use animated, slow-motion, or speeded-up film or video-tape to demonstrate changes over time (including computer animation).

(5) To teach certain advanced scientific or technological concepts (such as theories of relativity or quantum theory) without students having to master highly advanced mathematical techniques, by using instead animation, physical models, televisual representation or two-, three- or n-dimensional space, and of dynamic change or movement.

(6) To analyse through a combination of graphics and sound the structure of music.

(7) To condense or synthesise into a coherent whole a wide range of information which would require considerable length in print, and which in print would not provide the richness of background material necessary for students to appreciate fully the situation.

(c) To provide primary learning resources

(1) To demonstrate experiements or experimental situations, particularly:

(i) where equipment of phenomena to be observed are large, expensive, inaccessible, or difficult to observe without special equipment;

(ii) where the experimental design is complex;

(iii) where the measurement of experimental behaviour is not easily reduced to a single scale or dimension (e.g. human behaviour);

(iv) where the experimental behaviour may be influenced by uncontrollable but observable variables.

(2) To substitute for a field visit (e.g. to a factory, museum, archaeological or architectural site, geographical location etc.) Field visits may be used for a number of purposes, for example:

(i) to provide students with an accurate, comprehensive visual picture of the site, or to provide an overall visual context or environment for certain phenomena, in order to place their study in context;

(ii) to demonstrate the relationship between different elements of the particular system being viewed (e.g. machinery, production processes, ecological balance);

(iii) to observe differences in scale and process between laboratory and mass-production techniques;

(iv) to assist students to differentiate between different classes or categories or phenomena in situ.

(3) To bring to students primary resource material, or case-study material, i.e. film or recordings of naturally occurring events which, through editing and selection, demonstrate or illustrate principles covered in the units. This material may be used in a number of different ways, for example:

(i) to enable students to recognise naturally occurring categories, symptoms, phenomena, etc. (e.g. teaching strategies, mental disorders, examples of certain kinds of human interaction etc.);

(ii) to enable students to analyse a situation, using principles or criteria established elsewhere in a unit; or to test students in this way;

(iii) to enable the course team to demonstrate ways in which more abstract principles or concepts established elsewhere in a unit have been applied to the solution of 'real-world' problems, where visualisation of the application in its total environment is necessary to understand the way the principle has been applied, and the difficulties encountered.

(4) To demonstrate decision-making processes:

(i) by filming or observing the decision-making process as it occurs;

(ii) by dramatisation;

(iii) by simulation or role-playing.

(5) To bring students examples of films or television programmes, where the critical study and analysis of film or television itself is the subject material of a course.

(6) To demonstrate the way in which instruments or tools can be played or used; to demonstrate the skills of craftsmen and their relationship with the materials and tools which they use. To record specifically events, experiments, species, places, people, buildings, etc., which are crucial to the content of units, but may be likely to disappear, die or be destroyed in the near future.

(d) To achieve affective learning

(1) To change student attitudes by presenting material in a novel manner,

or from an unfamiliar viewpoint.

(2) To enable students to identify with the emotions and viewpoints of the main participants; by presenting material in a dramatised form.

(3) To make students identify closely with someone in the programme who overcomes problems or himself changes his attitudes as a result of evidence presented in the programme or televised exercises.

Conclusion

Much of the earlier use of television in conventional education was restricted to recording of live lecture, failing to take advantage the characteristics of the medium. However, at the UKOU, the educational potential of television are largely exploited. In the experience of the UKOU, television can provide distance learners with learning experiences that would otherwise be inaccessible. Complex or expensive experiments, field visits, a wide range of social and interpersonal interaction and industrial process, are just some of the experiences that can be offered to students in their own homes through television. Besides, the UKOU television programmes have very important tertiary education objectives. They attempt to give students the opportunity to practise high-level learning skills, such as analysis, application of abstract principles to real-world situations, evaluation, and generalization. To summarize, the use of television at the UKOU not only overcomes the problems inherent to distance education but also helps students to develop skills which are a crucial part of higher education.

CHAPTER FOUR

DETERMINANTS AND CONSTRAINTS OF LEARNING THROUGH TELEVISION AT THE BRITISH OPEN UNIVERSITY

From the UKOU experience, the effectiveness of television as a medium of learning has varied in accordance with the context in which it is applied. Aside from the quality of the course, and therefore, the programmes broadcast as part of the course content, other important factors also determine the effectiveness of television learning.

The Partnership between the UKOU and the BBC

At the UKOU, courses are designed from the start with the assumption that television will be used. The UKOU television programmes are produced by the BBC/OUP which is a separate self-contained production department solely serving UKOU production. There is a formal partnership between the UKOU and the BBC. The BBC will supply the UKOU with a minimum of 30 hours a week of television transmission time and approximately 240 new television programmes a year. Currently, with the support from the BBC, over 1,500 UKOU television programmes are transmitted each year on the BBC's national television networks, requiring over 35 hours a week of transmission time.

TABLE III : THE TRANSMISSION AND PRODUCTION RESOURCES AVAILABLE FROM THE BBC

Transmission Time	35 hours/week
New programme produced	240 programmes/year
Programme transmitted	1500 programmes/year

There are many advantage in the UKOU television programmes being produced by a professional broadcasting organization like the BBC. The BBC producers for the UKOU productions are specially recruited for their academic qualifications in the areas in which they will make programmes. They are full members of course teams and take part in the overall design and development of a course. Once a plan for television production is accepted, the resource available for implementing that plan are immense. The BBC/OUP has a staff of around 60 producers, full technical and administrative support, and a sophisticated studio complex. With the professional staff and sophisticated facilities, the UKOU programmes are made to a high professional standard.

Obviously, the UKOU has easy access to production and transmission facilities. This is the great advantage that the UKOU has over other distance study universities. For example, the Chinese Central Broadcasting and Television University (hereafter the CCTU) which produces and transmits over 30 hours of television each week to 300,000 students only uses a total of 10 producers. In contrast to the UKOU, the CCTU television programmes are

mainly pre-recorded lectures. Due to inadequate technical facilities, more elaborate programme production is prevented. (66) Moreover, for the other distance study universities, most are dependent for both transmission and production facilities on separate broadcasting organizations. The Athabasca University in Canada and the Everyman's University in Israel purchase television materials from other sources as well as commissioning their own productions. In most of the open universities, many courses have no television support at all.

Transmission Arrangements

The prime condition that has to be met in a distance learning system is the delivery of the learning materials. In the case of learning from television, if students do not see the programmes, they cannot learn from them. According to figures provided by studies on the UKOU, transmission has become a major problem as viewing figures have been dropping consistently since 1976. Although by 1983 almost all UKOU students (98.5 per cent) had access to a television set, the viewing rates declined from an average of 65 per cent in 1976 to 52 per cent in 1982. At the post-foundation level, the viewing figure in 1982 was only 51 per cent. (67) A transmission viewing rate of 52 per cent means that either 52 per cent of the students on a course would watch each programme on average, or that over a whole course an average student would watch 52 per cent of the programmes on that course.

At the UKOU, the key factor influencing viewing rates is the deterioration in the quality of the transmission time, although other factors have also played a part. In 1974 over half the available transmission slots were regarded as convenient by 60 per cent or more of students. By 1979 only 35 per cent of the available slots were regarded as being convenient

by the same proportion of students. (68) As the BBC tends to reserve the prime viewing time for popular programmes to compete with the commercial channels for mass audience, a high proportion of the UKOU programmes are forced into less popular transmission slots in the early morning and early afternoon. It is certain that the overall viewing figures become lower. Since 1983, the transmission slots have been as follows :

TABLE IV : THE TRANSMISSION SLOTS FOR UKOU PROGRAMMES

Weekdays	mornings	06:05 - 08:10
	evening	17:10 - 17:35
	night	23:30 - 00:20
Saturday		06:25 - 15:10
Sunday		06:25 - 13:55

Relevant data show that programmes broadcast before 7:00 a.m. or between 9:30 a.m. and 5:00 p.m. during the week never reach more than 20 per cent of the students on a course. (69) It is also noteworthy that programmes with good viewing rates one year have poorer viewing rates the following year when moved to unpopular times. (70) One of the major determinants of viewing rates, then, is not so much the importance and quality of the programmes, but

the time of day when they are aired.

Moreover, cumulative loss of viewers over a series of programmes is another constraint for facilitating learning through television. (71) The longer the series progresses, the greater the loss of regular viewers. Although a series of programmes is essential for a coherent progression of teaching, it seems difficult to sustain the interest of the viewers over a long period.

The need to require a great amount of television transmission time is a problem peculiar to the UKOU, which uses television as a component for a wide range of courses. In 1981, the UKOU offered 125 different courses across four different levels. Only 8 of these 125 courses did not employ television as a medium of instruction. The fact that all these television programmes competed for a limited slot of time meant that some programmes can only be transmitted at an inconvenient time. The dearth of transmission time also meant that more programmes would lose their repeat transmissions. In 1974 all courses had repeat broadcasts, whereas in 1982 a total of 32 courses had only single transmissions, as a result of the increasing number of courses competing for broadcast time. (72) From surveys, it is shown that even repeats are not sufficient to ensure a high viewing rate if both transmissions are at unpopular times. (73) It is clear that the UKOU must come up with strategy to efficiently exploit both repeats and prime time in order to ensure student viewing of its television programmes. If convenient transmission time cannot be maintained, a high viewing rate can only be achieved by reducing the number of transmitted programmes in order to provide more repeats, or by finding additional means of viewing, such as video recordings.

Learning Approach to Television

An advantage claimed for television is that its liveliness and familiarity can help to attract students learning at a distance. Yet students' attitude towards television prior to enrolling the UKOU can certainly influence the way they learn from television. People usually view television as a resource of entertainment, and would invest little mental effort in watching its programmes. (74) Those UKOU students who have grown into this habit are likely to take this attitude towards the UKOU television programmes. They may be seduced into considering the UKOU programme as a soft option involving little learning response on their part. They tend to concentrate on the factual content of a programme rather than try to understand the relationships or implications contained in it. This is a salient problem in the UKOU, since the intended purpose of its television programmes is to develop analytical and interpretative skills which require investment of mental effort.

For most UKOU students, their attitude towards general television hinders their studies at the UKOU. The main difficulty for many students is that they are unable to develop through television the skills of analysis, generalization, classification and evaluation. This is supported by the fact that two-thirds of the students want help in learning through documentary programmes which require them to apply general principles to real-world situations. (75) It is clear that learning from television is different from watching ordinary television, for it requires sophisticated interpretative skills.

Control Limitations of Broadcasting Television

While television possesses obvious strengths as a teaching medium in the UKOU context, it also has certain inherent characteristics which limit its usefulness. From the students' point of view, broadcasting television is comparatively inflexible. Students have to view the programmes at a rigid schedules. They cannot use the television materials at a time that is convenient to them. Moreover the pace of a broadcasting programme is fixed. Its speed cannot be controlled to accommodate the peculiar needs of individual students. There will always be some in the audience who find the pace of programmes disagreeable. Also, it is difficult for students to integrate broadcasts with other course components, as it is impossible to stop or refer to a programme at a specific point. As Bates points out, if ideas or thoughts are stimulated during a broadcast, learners run the risk of either losing the thread of the programme or being unable to follow through with their own ideas. (76) These built-in control limitations make it difficult for students to master skills or acquire deep understanding through broadcasting alone. It is therefore necessary to look for an effective stragegy which allows the students to have more control over the television materials.

Student Perception of the Relevance of Television Programmes

From the UKOU experience, when students are unable to see the relevance of the television programmes, they will not be able to learn effectively from television. Lack of relevance is one of the main reasons given by the UKOU students for not watching or for rating programmes not helpful. (77) It is therefore crucial that students understand clearly their learning task in viewing the television programmes and the reasons behind the learning tasks; otherwise, it is easy for students to misinterpret the education objectives of the programmes. Research on a relatively large number of documentary

programmes finds that the majority of the UKOU students do not think that the programmes are relevant or helpful. (78) Moreover, less than one-third of the students watching the programmes can both understand the function of these programmes and use the programme materials in ways that are expected. One-third of students understand the purpose of such programmes, but are unable to use the programme materials in intended ways. The case-study programmes also have the same problem. They are designed to serve as resources for the development of skills of analysis, synthesis, and evaluation but the majority of students only see them as a source of information. (79) Lack of perceived relevance poses a serious restriction on television learning with the UKOU, especially when its students bascially learn in isolation without any instructional staff to provide them with guidence.

To facilitate learning, it is essential that television materials should be integrated with other media so that their relevance could be highlighted. As far as the integration of course components is concerned, distance study universities like the UKOU have great advantage over university extension model. In the former, the course design process is structured in a way that would allow television to be intergrated into the course from the beginning. For example, in the Mathematics foundation course M101, all the course components are so tightly integrated that students have to develop their learning according to the course schedule. Students have to perform tasks based on the broadcasts immediately following the programmes before they can progress to the next section. The student viewing rate for M101 is 78 per cent, compared with 63 per cent for the course it replaces (M100). Students generally consider television programmes very helpful to their learning. (80)

The way the courses are assessed often influence the perceived relevance of the television programmes. As the UKOU students cannot spare much time

their study, they will usually watch only those programmes which can help them work on assignments and examination questions. It is clear from studies carried by Bates and Kern that setting questions on assignments which can be answered through watching television programmes can increase their relevance and viewing rates for the programme. (81) However, broadcast-related questions can only help in viewing rate, but they may not really help the student understand the educational objectives of the programme.

In general, many UKOU courses do not have explicit links between the programmes and the text. Many of the studies on the UKOU (e.g. Gallagher, 1975; Gallangher, 1977; Brahmawong and Bates, 1977; Brown, 1981) show that students find it difficult to relate the programmes to the texts in ways which they see as relevant and helpful. This is often due to the different production schedules for text and television programmes. As Bates points out, the close synchronization of production schedules is very hard to achieve between two large and complex organizations such as the BBC and the UKOU. (82)

Presentation Modes of the Programmes

At the UKOU, there are different demands for different television programmes. For example, certain UKOU programmes require thorough preparation before viewing, concentration while viewing, and follow-up work after viewing, while others expect a high level of response during transmission and only minimal work afterwards. (83) In addition, there are also a number of different presentation modes. (84) Some programmes are highly didactic, which means that information is explicitly analysed or explained for the students. Others are very open-ended. Programme materials are loosely structured and allow for a range of possible interpretations. Concomitantly, a programme can be active or

passive in terms of response expected from the students. A programme can also take a neutral or polemic position on arguments presented in the programme itself. Obviously, programmes which employ presentation modes that are didactic, passive and polemic, make much lesser demands on learners than those which employ open-ended, active and neutral modes. (85)

According to research data, most UKOU students tend to invest little mental effort when they view the television programmes regardless of their presentation mode. (86) Moreover, the UKOU students find it comparatively easy to handle didactic, highly structured, and neutral programmes (such as laboratory demonstrations) where the aims of the programmes are explicit, and cleary related to the text. (87) It is not surprising that the UKOU students favour the didactic programmes, since this presentation mode requires less mental effort and parallels with the teaching style in conventional education. In the case of the open-ended programmes, the contents are less structured and their meaning less explicit. Since the content of an open-ended programme is usually presented as semi-raw material for analysis, the students are required to employ relatively high level cognitive skills to learn. To the UKOU students, open-ended programmes are interesting and enjoyable to view but difficult to deal with. (88)

The UKOU students usually bring their own interpretations of the programmes and structure the information in their own ways. For example, the aim of the programme "Home" (a television programme in the Course T101 : Living with Technology : A Foundation Course) is simply to show what an experimental house is like, as a way of broadening students' experience of different house designs. The programme exemplifies an approach to house design based on careful analysis of living requirements, materials properties and energy sources. However, it is illustrated from survey that most of the students

think the programme is about a man and his family who live in a strange dome-shaped house. The students comment that they cannot imagine what the aim of this programme can be because it shows a house design quite unlike anything they are ever likely to encounter in real life. (89) For the loosely structured programmes, students sometimes impose their own interpretation which differs greatly from what the course designers have intended. It has been found that many UKOU students are only familiar with the skills necessary for conventional education. Research data illustrate that most of the UKOU students do not have the interpretative skills required to understand the intended messages or achieved the intended learning goals of its television programmes. (90) It is recommended, therefore, that the more inexperienced students are in learning through television, the more didactic, structured, active, neutral and integrated the programmes should be. (91)

Conclusion

While the importance of television in distance education is widely recognized, the UKOU is facing an increasingly serious problem arising from its use of television. Clearly, the characteristics of television do lend themselves to particular teaching functions, but in a distance teaching context, a factor of overriding importance is the extent to which any educational medium is accessible and controllable by the learner. Besides, there are other factors which also influence the development of learning through television. Such factors as different presentation modes, the skills for learning through television and the integration of television materials into other course components inevitably affects the efficacy of television learning, and therefore, the quality of education at the UKOU.

CHAPTER FIVE

STRATEGIES FOR EFFECTIVE LEARNING THROUGH TELEVISION AT THE BRITISH OPEN UNIVERSITY

Its important role not withstanding, the effectiveness of instructional television at the UKOU has been undermined by difficulties with transmission arrangement, the control characteristics of broadcasting television and student inability to use television materials. The use of television at the UKOU can be valuable but the necessary conditions for success have to be met. In order to diagnose and solve the problems associated with television learning, the UKOU has come up with a number of strategies for ensuring a better use of television materials in a distance learning context.

Develop Student's Skill of Learning from Television

For many UKOU students, learning from television is difficult, especially when the programmes require them to apply analytical skills which they do not possess. Since the students lack the ability to use television effectively, they naturally consider the television materials to be useless and irrelevant. One of the strategies which the UKOU employs to maximize students' learning from television is to design a deliberate, progressive teaching approach that will enable them to develop their analytical skills over a whole course.

The basic assumption of this strategy is that the development of interpretative and analytical skills can be built into the programmes. The way in which the course attempts to achieve this is to instill a sequence of

growing complexity into the programme. It starts by broadcasting very simple television programmes at the beginning of the course to much more complex ones at the end. At the beginning of the course, television programmes tend to be heavily didactic, more straightforward and simply structured. The objectives of the programmes are presented openly and repeatedly throughout the programmes. The television materials are easier to handle, as they require less mental effort and less active response from the students. Gradually, the programmes become more demanding. Students are required to invest more mental effort and they are encouraged to make their own analysis and interpretation. To help students use the television materials, the programmes provide cues on what students should look for, how the materials can be interpreted, and how the programmes can be integrated with concepts embodied in the course text. Feedback on suitable responses are provided to reinforce learning and sometimes materials are repeated for review and analysis. By the end of the course, when students become more experienced in learning from television, the programmes are structured in a more open-ended and complex manner. The aim of the programmes is not stated explicitly. The programmes are no longer linked to specific aspects of other course components, as the students are encouraged to connect the programmes with the broad themes of the whole course. (92)

The above approach is used to help students to develop skills of learning from television. Its usefulness has been proven in some of the courses offered. As the UKOU students become more experienced in using television materials, they find it easier to interpret the programmes. For example, half of those students who have viewed television programmes for the course : "T101 : Living with Technology : A Foundation Course" thought that they learnt more effectively at the end of the course than at the beginning. (93) In this course, the aim of the first programme, "Facts Are Not Enough" is simply that facts are an inadequate basis for technological decision-making because

technological issues cannot be divorced from their social and political contexts. This objective is stated openly and repeatedly throughout the programme in conjunction with simple illustration to highlight the point; in addition, the programme is tightly linked to a course text. In contrast, the aim of the last programme "Cars" is to show the extent to which modern society has become dependent on the car in a multitude of different ways, as an illustration of the complexity of the technological world. The aim is not stated explicitly in the programme. In addition, there are no course texts associated specially with the programme because it encourages the students to pull together the broad themes which have been developing throughout the entire course. (94) Moreover, according to research data, the new course "D102 : Social Sciences : A Foundation Course", which attempts this particular strategy, is better received by students than the previous Social Science Foundation Courses D100 and D101. (95)

In addition, the UKOU helps students to develop the ability in learning from television by a specially produced learning package. "Learning from Television : A Study Package" is a self-contained package which is generally used by student groups led by a tutor-counsellor in the oriented study skill course. The package consists of a video-cassette containing a brief overview of the range of the UKOU television programmes and extracts from some of its programmes; these are accompanied by written papers and exercises which aim to clarify the variety of responses often implicitly expected of students. The aim of this package is to illustrate contrasting UKOU television programmes, using different techniques and trying to achieve different educational objectives. In this package, the UKOU television programmes are grouped in terms of the different demands expected of students.

Firstly, the package illustrates the group of programmes which expect

active response during transmission. Students are expected to do some exercises when they view the programmes. In general, students need to answer some questions related to the materials presented in the programmes or participate in an experiment. Secondly, the package presents two video extracts of illustrated lectures which require students to follow an argument or a process and to understand it. The first extract shows a scientific laboratory experiment, the second, an extract from an Arts Faculty programme which discusses and illustrates certain differences and similarities that may be identified in the works of Turner and Constable. For the third group of programmes, they aim not at direct teaching but at providing a specific kind of experience, such as the presentation of a performance, perhaps of drama or dance, or a programme which introduces students to a new idea. To help student to get the maximum from this format of programmes, the package suggests that students try to watch these programmes with other persons, in order to discuss their ideas about them afterwards. This group of programmes lend themselves very profitably to group discussion. Finally, the package illustrates to the students how to learn from case study programmes which are more demanding than other formats. Two examples of case study programmes are presented. In one example, students are expected to follow the links between the programme and the rest of the course, and are guided in the programme towards such analysis, in the other, students are expected to analyse the links for themselves.

To summarize, this package aims to help student to become more skilled in using television as a learning resources; to help them to identify the different ways in which they can learn from television programmes; and to help them to work out what kind of preparation enables them to gain most from the actual programme, in conjunction with the printed materials that complement many programmes.

TABLE V : THE FOUR MAIN GROUPS OF UKOU PROGRAMMES

	BEFORE	DURING	AFTER
GROUP A Programmes that set a task e.g. *A categorization task *Participation in an experiment	. Preparation - get ready any book or equipment which is needed to use	. Work on the programme *during* transmission	. Possible analysis of work done during programme
GROUP B Programmes that present an illustrated lecture e.g. *A critical analysis *An experiment *A deduction process	. Preparation - make sure work in the related unit has been done	. Concentration - following and understanding an argument of a process	. Follow-up work
GROUP C Programmes that offer a particular experience e.g. *The performance of a work *A 'new' approach to a subject An insight into another culture or community	. Little or no preparation	. Concentration - trying to absorb and enjoy as many of the visual and audio messages as possible	. Discussion or note-taking after viewing
GROUP D Programmes that provide case study material e.g. *A field trip *A guided case study *An open-ended case study	. Preparation - understand the concepts or theories which are to be illustrated by the case study	. Concentration - following the links between the programme and the rest of the course, or analysing the links by the students themselves	. Disucession or note-taking after viewing

Source : The Open University, Workbook of the Self-Learning Package : "Learning From Television", (Milton Keynes : The Open University, 1981).

Provide Substantial Study Guide for Television Programmes

The UKOU uses study guides to advise students what they are about to study and help them to decide about their own learning strategies. Moreover, the study guide is used to provide a conceptual framework for facilitating learning and retention of new materials by relating new ideas to those that are old or familiar.

To help students to learn effectively from television, the UKOU uses printed study guide which is known as broadcast notes to support the television programmes. Some courses even use glossy media booklets with large amounts of background materials, maps, photographs, and supplementary readings. (96) The broadcast notes are used to advise students on any prerequisite readings and specify the necessary preparatory work which should be done beforehand. Most significantly, broadcast notes can explain the aims and objectives of the programmes and how they relate to the ideas the students have already learnt. On the basis of the information provided by the broadcast notes, the students can develop the cognitive structure into which the ideas illustrated by the programme can be fitted.

In addition, the broadcast notes are used to highlight the important points to watch out for, and provide a summary of main points covered, follow-up activities to consolidate learning and diagrams or tables shown in the programme useful for revision purposes. For example, in the case-study programme, Atkinson College - Management In Crisis (the seventh programme of the course "E321 : Management in Education"), the programme objectives, the important points to watch out, and the demands of the programme are outlined in the broadcast notes. The intention of the broadcast notes, therefore, is to help students to perceive the relevance of the programme and enable them to make

decisions about how to study it. The broadcast notes suggest that the students concentrate on the distinctive features of crisis management illustrated by the budget crisis experienced at Atkinson College. In addition, from the broadcast notes the students know that they are required to analyse the effectiveness of the consulative mode of participative decision making in a crisis management situation. In this way, it is hoped that the students can apply the management theory they have learnt from the text to the real-world situation.

Apparently, the strategy of supporting television programmes by broadcast notes improves students' ability to learn from television, provided that the broadcast notes are carefully structured and sufficiently detailed. According to programme evaluation data, the UKOU students find that some broadcast notes are not helpful enought, if they are too brief and too limited in their scope. (97) On the other hand, students rarely read broadcast notes which provide too much information. If a lot of detail is provided, students will either not read the notes, or will simply read the notes and not bother to watch the programmes. (98)

In addition to the broadcast notes, another strategy used by the UKOU is to begin the television programme with a short prologue which is an integral part of the television programmes themselves. The prologues are simply structured and quite distinct from the rest of the programmes. Most of the prologues consist of only straight forward "presenter-to-camera" shot. In this way students can easily grasp the brief message of the prologues without being distracted by the richness of visual images. Like the broadcast notes, the prologues are used to introduce the programme and advise students on how they should respond to the programmes. In general, the key role of the prologues is to advise students whether the programmes are used primarily to teach them something or make them reconsider their attitudes towards something. For example, the prologue of the

programme, Seeing Through Drawings', advises the students that the programme intends to teach them the principles of drawing and the rules and conventions which govern two important types of drawing. While the prologue of the programme, Electric Money, tells the students that the programme aims to make them aware of the influence of the new revolution in communications. However, the control limitations of prologues do not make them a good substitute for broadcast notes. Unlike the broadcast notes, the prologues cannot provide permanent references which are repeatedly accessible by students.

For some courses, special television programmes are used to support those programmes transmitted earlier in the course. They are intended to show students how to analyse the contents of earlier programmes. For example, in the course "E321 : Management in Education", there are two case study television programmes which are about the management structure of Sidney Stringer Comprehensive School and Community College. The two programmes provide further learning experiences for the students to analyse a decision making structure in a real-world situation. The study guide advises the students to answer the questions in student activities 1-3 after viewing the first television programme which introduces the decision making process in Sidney Stringer. After viewing the second television programme which highlights the participative and consultative modes of Sidney Stringer's decision making structure, the students are expected to revise their activities in the light of the second programme. In this way, the second television programme is designed to help students to improve their analysis of the case study. For example, in the "Course D302 : Patterns of Inequality," the second television programme, 'Looking At Inequality' is used to illustrate how the first television programme can be used and integrated with the text. It takes extracts from the first programme and from World War II newsreels. It has been found that this supporting programme increases by one third the students who are able to analyse the first

programme in the way intended, and nearly all students want more analytic programmes of this kind. (99)

Radio programmes and audio cassettes also perform a similar follow-up function. They are used to repeat one or two of the points in the corresponding television programmes for more extended discussions on the topics. Usually, the audio materials include a few extracts from the soundtrack of the television programmes in order to help students to focus on aspects which are problematic and deserve further thought. Sometimes the follow-up audio programmes also include additional materials to elaborate on the television programmes presented earlier. The Sidney Stringer case study programmes are supported by two radio programmes in which an industrial management consultant gives his view on the management structure of the Sidney Stringer. Similarly, the first television programme of the course "T101 : Living with Technology," Facts Are Not Enough, illustrates the limitation of technical facts for setting contentious socio-technical issues. This idea is elaborated by a radio programme which points out that personal values also colour the interpretation of facts.

The UKOU uses different media to increase the effectiveness of the television materials. One important implication arising from this strategy is that television programmes are likely to be more effective when they are employed as part of a multi-media package than when they are used on their own without supporting materials. For example, the sixth television programme of the course "T101 : Living with Technology," Sound In View, is supported by a printed text and an audio cassette. The text outlines a theoretical framework by defining a large number of theories in telecommunications signals, such as band-width, harmonics, noise, and multiplexing. The audio cassette allows students to listen to the concrete examples of the abstract concepts given in

the text. The television programme exploits the medium in illustrating to students the dynamic qualities of signals and waveforms. The three components are tightly integrated to explain difficult concepts to students. From programme evaluation data, it is shown that the television programme is helpful to students because they can perceive its relevance and see how it relates to other course components. (100)

Improvement of the Structure of the Television Programme

In its attempt to design effective television materials, the UKOU course team sees the structure of the programmes as a key consideration. The UKOU assumes that the structure of the programmes influences the way students process and learn from the materials presented through television. (101) Although supplementary study guides help students to facilitate learning from television, research carried out by Bates and Gallagher indicates that many students find it very difficult to work through the supplementary materials in the intended sequence because their study patterns do not necessarily coincide with the rigid transmission schedule of broadcasting television. (102) Therefore, to develop a more appropriate programme structure which would reduce the need for supplementary materials may be probably the most fundamental strategy.

Bascially, as suggested by Bates, the structure of programmes likely to appeal to committed learners will be very different from programmes likely to appeal to a general audience. (103) For example, the advertising techniques which have to hook the audience and get a message over very quickly and efficiently, have been particularly influential on the structure of general television programmes. Although these popular techniques seem to hold a

attract the audience, they can hinder the development of logical and linear thinking. (104) In fact, the structures and techniques which enhance attention and audience appeal in general television do not contribute to achieve the educational aims of programmes which may occasionally require students to stop and think.

The general rules of good teaching are likely to apply just as much to television teaching for facilitating student learning. The UKOU publishes a checklist for use by the course team in determining the educational effectiveness of the learning materials. (105) The UKOU is aware that the effectiveness of distance learning materials, like the conventional teaching materials, depends on many factors, such as the relevance of the subject matter, the skilled use of language, the density of information, the needs of the learners and so on. Undoubtedly, this checklist also applies to the production of television materials. To help student to get maximum from the television materials, the UKOU television producers have attempted several strategies to make the programmes more appropriate for facilitating student learning. Unlike general television programmes which have complex structures and short, sharp sequences, UKOU television programmes are generally put in a well-structured order, with introductions, and summaries or reviews used where appropriate. The UKOU television producers usually slow down the pace of the programme and hold shots in order to give learners time to observe and to think. Sometimes, they freeze the action while students are reminded of the concept, (e.g. the learning package to develop television learning skill - Learning From Television), flash important words and phrases on the screen (e.g. the second television programme of "T101 : Living with Technology" - Seeing Through Drawings), or repeat parts of the programmes to reinforce the learning (e.g. the seventh television programme of the "course D101 : Making Sense of the Society" - Hockett's Design Feature).

As already mentioned in Chapter Three, the UKOU considers that the development of cognitive skills of discovering and problem solving is a crucial part of tertiary education. For the learning of such skills to occur, students should actively participate in the process of learning. In order to encourage greater activity on the part of the learner, the UKOU suggests that the structure of the distance learning package should be like that of a tutorial. (106) Cleary, a tutorial approach provides prompts which encourage the interaction between learners and the learning materials. There are two general types of interaction : First, the interactive response system which invites the student to respond actively to the teaching materials. Second, the interactive request system which allows the student to access a store of information. Basically, the UKOU television programmes employ the interactive response approach. In general, the UKOU television programmes present a section of teaching materials to the students and then pose the students a question or ask them to do some activities. Examples of programmes which employ the interactive approach are as follows : (1) In the seventh television programme of the course "D101 : Making Sense of the Society," Hockett's Design Features, students are shown six different film sequences illustrating instances of communication between animals or humans. Students are invited to do the participative exercise which requires them to identify during the programme the correct design feature which each sequence tends to illustrate. This participatory work is followed by a screen presentation of the correct answers and discussion. An evaluation of the programme by Kern shows that students find it very helpful and interesting. A majority of students state that the programme gives them a better understanding of the design features described in the text. (107) (2) In the Course "EM235 : Developing Mathematical Thinking," students are encouraged to interact with the television materials. The programmes show sequences of children and their teachers tackling mathematical

problems in the classroom. The course is designed primarily for group use. In each sequence students are told to focus their attention upon particular aspects of the content. At the end of each sequence, the students are asked questions which lead to discussion among groups of viewers. Immediate feedback is presented on the accompaning printed notes or contained within the programmes themselves. For example, in the first sequence of the course which is about substraction, the students are shown how three children learn the concept of substraction. At the end of the sequence, the students are asked to make conclusion on each child's state of understanding. In this way, students are provided with a context in which students interact with both the programmes and other viewers. The findings from the programme evaluation reveal that the students tend to be enthusiastic about the course as a whole. They are willing to use the television materials to develop open-ended analysis.

However, although many attempts have been tried to make the television programmes more interactive, with the control limitations of the broadcasting television, the interactive potentials of the programmes cannot be fully exploited.

Learning from Television through Video Cassette

As already mentioned in Chapter Four, a decline in both the quantity and the quality of transmission time allocated to the UKOU television programmes has substantially reduced student viewing rates. Moreover, it has also been illustrated that the control characteristics of broadcasting programmes limit the educational effectiveness of television materials. Faced with the twin problem of access and control, the UKOU has to find the most effective ways of delivering its television programmes to students.

In the first attempt, the UKOU seeks alternative means of distributing it's television programmes. Various limited schemes for providing students with video copies of broadcasting materials have been tried out since 1974. (108) (109) (110) In 1982, in response to further deterioration in the transmission times available for its television programmes, the UKOU provided a pilot Video Cassette Loan Service on selected courses for students. The scheme was designed to improve student access to television programmes in two ways. First, it was intended to replace the repeat transmissions. Second, it was used to supplement the unpopular transmission times.

The implementation of this scheme is to provide students with access to video equipment on which they can view cassette versions of teleivsion materials. The UKOU hires 243 video-cassette players and makes these available throughout the regional offices to supplement the availability of suitable replay equipment. For the video copy of the broadcasting programme, at the beginning, it was limited to 37 courses (439 different programmes) with low student numbers (less than 600) and courses without repeat transmission times. In 1984 the scheme was expanded to cover 85 courses, all with less than 700 students. (111) Students studying these courses can borrow video copies of the television programmes by mail order and watch the tapes on machines placed in local study centres or colleges. Cassettes are returned by students after use, and stored for re-use.

An evaluation of the first two years of the operation shows that, in general, the loan service has been successful. There is a considerable demand for the video version of the television programmes. In 1982, 16,000 cassettes were loaned out and over a third of requests (37 per cent) were from students. (112) In 1983, the requests for cassette loans from students leapt to 18,500.

(113) It is expected that the demand for loan copies will increase as more students get their own video cassette recorders. In fact, for the students who have their own machines or convenient access elsewhere make their own recording of the broadcasting programmes. From Grudin's survey in 1983, home recording helped to increase the viewing figure of post-foundation courses by 8 per cent. (114) It means that besides learning from the video copies supplied by the video loan scheme, more students learn through video recording of broadcasting television.

Besides, demand for cassettes is widespread and not restricted to students. 42 per cent of requests are from regional offices and the remainder (21 per cent) are from other users, such as the faculties. Also, the demand is not limited to a particular set of courses, 24 per cent of requests are for copies of programmes not included in the Loan Service. (115) Clearly, the video loan service improves the access to television materials. It not only compensates for the loss of repeat transmissions on the courses concerned, it actually increases their viewing rates. The evaluation of the service shows that the overall viewing rates for included programmes has been increased by 11 per cent over and above those achieved by a single transmission. This compares with an increase of 8 per cent typically achieved by post-foundation course repeat broadcasts. (116) Moreover, there is a significant difference between the viewing rates of students who request video and those who do not. Of those students who use video on average, 75 per cent watch each of the programmes on their course. The comparable viewing rate for students who do not use video is only 50 per cent. (117) Obviously, the provision of television programmes in video format as well as single broadcasting transmission significantly increases the viewing rates for those programmes. In other words, at the UKOU, video version of television programmes is more effective than repeat transmissions in improving the viewing rate.

The estimated cost of distributing a returnable video-cassette copy of one television programme is £1.00, assuming an eight-year course life. (118) This figure includes cassette costs, recording, packing and postage, plus an element for capital investment in the recording equipment. On the basis of this calculation, the annual cost of the Video Loan Scheme operated at the 1982 level, and assuming an eight-year amortization period, is approximately £40,500. (119) The Loan Service replaced 401 repeat transmissions. The equivalent transmission cost was £107,468. (120) It implies that the Loan Service resulted in a net annual saving of approximately £67,000 on programme distribution costs, while at the same time it improved the overall accessibility of television materials. Moreover, taking the average cost of transmission of a programme through broadcasting as £268, it appears that it will actually be cheaper to distribute video-cassettes to students than to pay for two transmissions when there are less than 500 students on a course, provided cassettes are returned and re-issued each year.

Concerning the economic factor, the UKOU developed the following policy for all new courses from 1985 (121) :

(1) Programmes on courses with less than 300 students will have no transmission but will be distributed on video-cassette to students' homes.

(2) Programmes on courses with between 300 and 1,000 students will have one television transmission and can also be borrowed on video-cassette through the loan scheme.

(3) Programmes on courses with more than 1,000 students will have

two transmissions but will not be available through the loan scheme.

(4) Individual course teams may deviate from this policy if they can make a special case.

Moreover, it is clear that video cassettes not only improve the accessibility of television progammes; but also their control characteristics and perceived degree of integration with the rest of the course components. Video cassettes have the advantage over broadcasting of increasing student control of the medium. Bates compares the control characteristics of broadcasting television with those of video materials. He highlights some of the unique education potentials of video programmes as well as certain constraints of broadcasting as an instructional medium.

The comparison is listed as follows (122) :

TABLE VI : THE COMPARSION OF CONTROL CHARACTERISTICS BETWEEN BROADCASTS AND VIDEO CASSETTES

	Characteristics	Implications to Learning
Broadcast	Fixed schedules	Fixed time to view

Broadcast	Scarcity of time (hence only one or two transmissions)	Limited response to material
	Ephemeral	Non-repeatable; non-retrievable (except by memory)
	Continuous	Thinking 'on-the-run'
	Holistic (i.e. a single unit)	Reflection, analysis, restructuring, relating to other materials, all difficult
	Aimed at 'average' target viewer	No room for individual differences in pace
	'Rich' in meaning	Interpretable in different ways and at different levels - but only a limited range of interpretation permissible in time available for any one student

Video	Available when required	Convenient
	Rewind/fast forward facility	Repetition; mastery learning; search
	Stop/start facility	Integration with other media: activities integrated with cassettes; more room for individual variation
	Non-continuous/ segmented	Reflection, analysis, restructuring easier

The more flexible control characteristics of video cassettes allow students to adjust the pace of the programmes to suit their own needs as necessary. Students who learn through video cassettes tend to view them more than once, on average they view the tapes 1.7 times. (123) They usually interrupts the tape to review, clarify and take notes on particular points. Furthermore, video cassettes make it easier for students to intergrate television materials with the other course components. Whereas with a broadcasting programme, with its continuous and uninterrupted flow, it is impossible to develop such close

integration between television and other course materials. Therefore, not surprisingly, those students who view the television programmes through video cassettes, 61 per cent rate the programmes as helpful, compared with 46 per cent of those who view them through broadcasts. (124)

Besides using video cassettes to alleviate the more obvious disadvantages of broadcasting television, that is the problems of access, control and integration, the UKOU also encourages course teams to design programmes from the outset to exploit the educational advantages of video cassettes. As the access to video equipment is not significantly widespread, the UKOU hesitates to produce programmes which can only be used on a cassette machine. In 1981, 11 per cent of the UKOU students had access to video-cassette recorders in their homes. Another 8 per cent (mainly teachers) had easy access to recorders elsewhere, mainly at places of work or the home of friend or relative. (125) By the end of 1982, 20 per cent of the UKOU students had access to machines in their home and another 22 per cent convenient access elsewhere. (126)

Indeed, interactive learning can be developed through television materials designed for use primarily through video cassettes. Video programmes can be segmented into sequences. At the end of each sequence students can be directed to stop the tape and take notes on, or discuss, what they have learnt. In this way, students are encouraged to interact with the video materials and respond actively in an analytical way. The UKOU also encourages a number of course teams to experiment with the design of video programmes. For example, the courses : "EM235-Developing Mathematical Thinking" is an UKOU undergraduate course which has television materials designed to take considerable advantages of

the control characteristics of the video cassettes. Although the programmes of this course have different design features from broadcasting programmes, they are also transmitted through broadcasting. In this way, the students without any access to video equipment can also view the programmes through broadcasting.

Conclusion

From the experience of the UKOU, television has proved to be an unique and valuable resource for multi-media distance education. However, for television to be used effectively in a distance learning context, some conditions have to be met. Firstly, access to television materials has to be reasonably convenient. The intentions of using television materials have to be clearly identified and these must be successfully communicated to students through supporting materials or the programmes themselves. Television can be valuable for developing higher-level skills which are a crucial part of higher education, provided that the student can gradually develop the necessary skills of analysis and interpretation. Lastly, programmes must be carefully structured in a way that television materials can be closely integrated with other course components and interactive learning can take place.

DIAGRAMS 1 -- IV THE STRATEGIES USED BY THE UKOU

TO IMPROVE TELEVISION LEARNING

Diagram 1

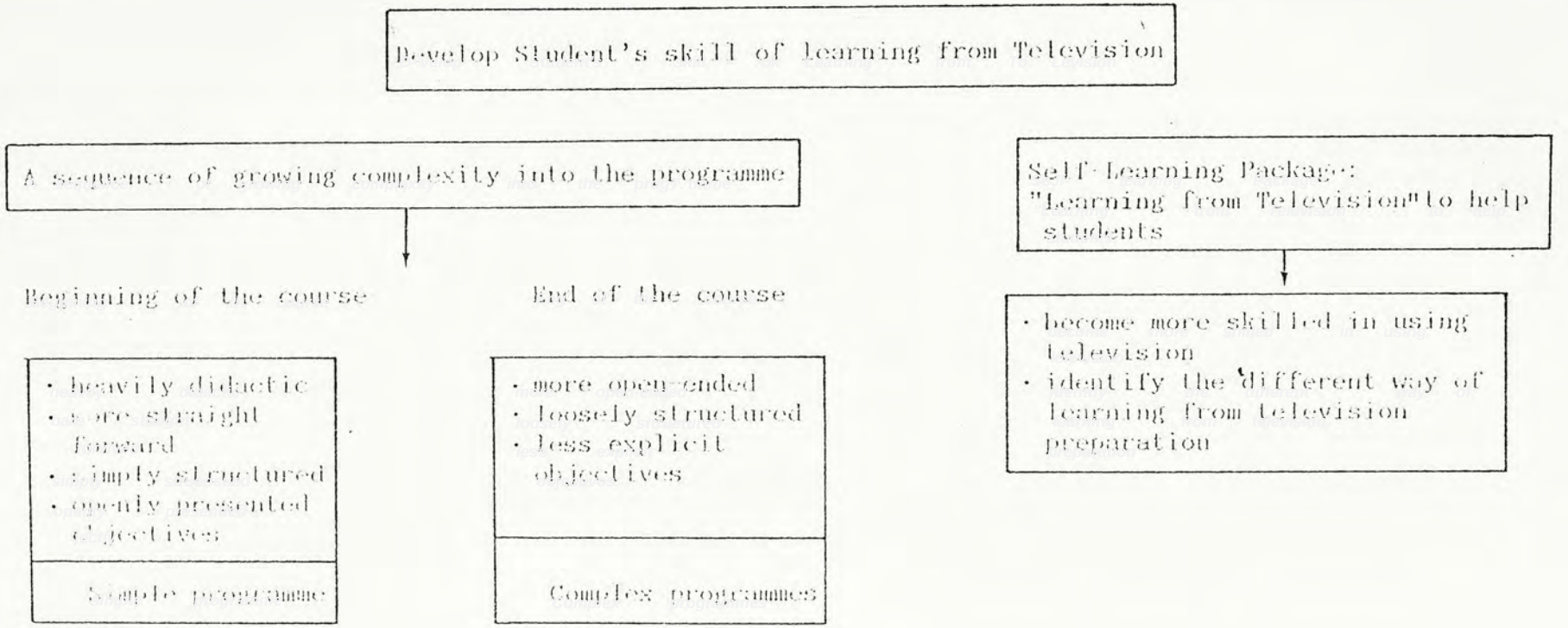

Develop Student's skill of learning from Television
A sequence of growing complexity into the programme
Beginning of the course
End of the course
· heavily didactic
· more straight forward
· simply structured
· openly presented objectives
Simple programme
· more open-ended
· loosely structured
· less explicit objectives
Complex programmes
Self-Learning Package: "Learning from Television" to help students
· become more skilled in using television
· identify the different way of learning from television preparation

Diagram II

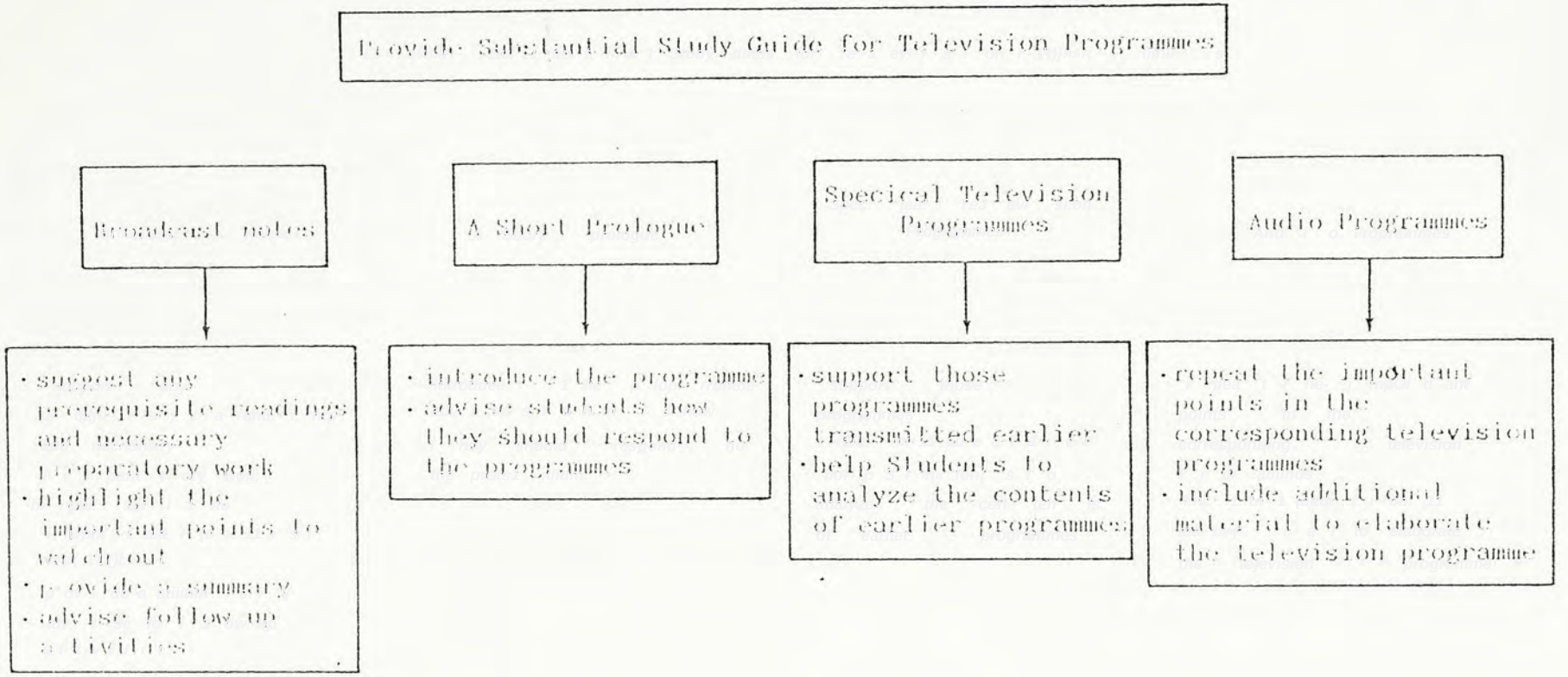

Provide Substantial Study Guide for Television Programmes
Broadcast notes
A Short Prologue
Special Television Programmes
Audio Programmes
· suggest any prerequisite readings and necessary preparatory work
· highlight the important points to watch out
· provide a summary
· advise follow up activities
· introduce the programme
· advise students how they should respond to the programmes
· support those programmes transmitted earlier
· help Students to analyze the contents of earlier programmes
· repeat the important points in the corresponding television programmes
· include additional material to elaborate the television programme

Diagram VII

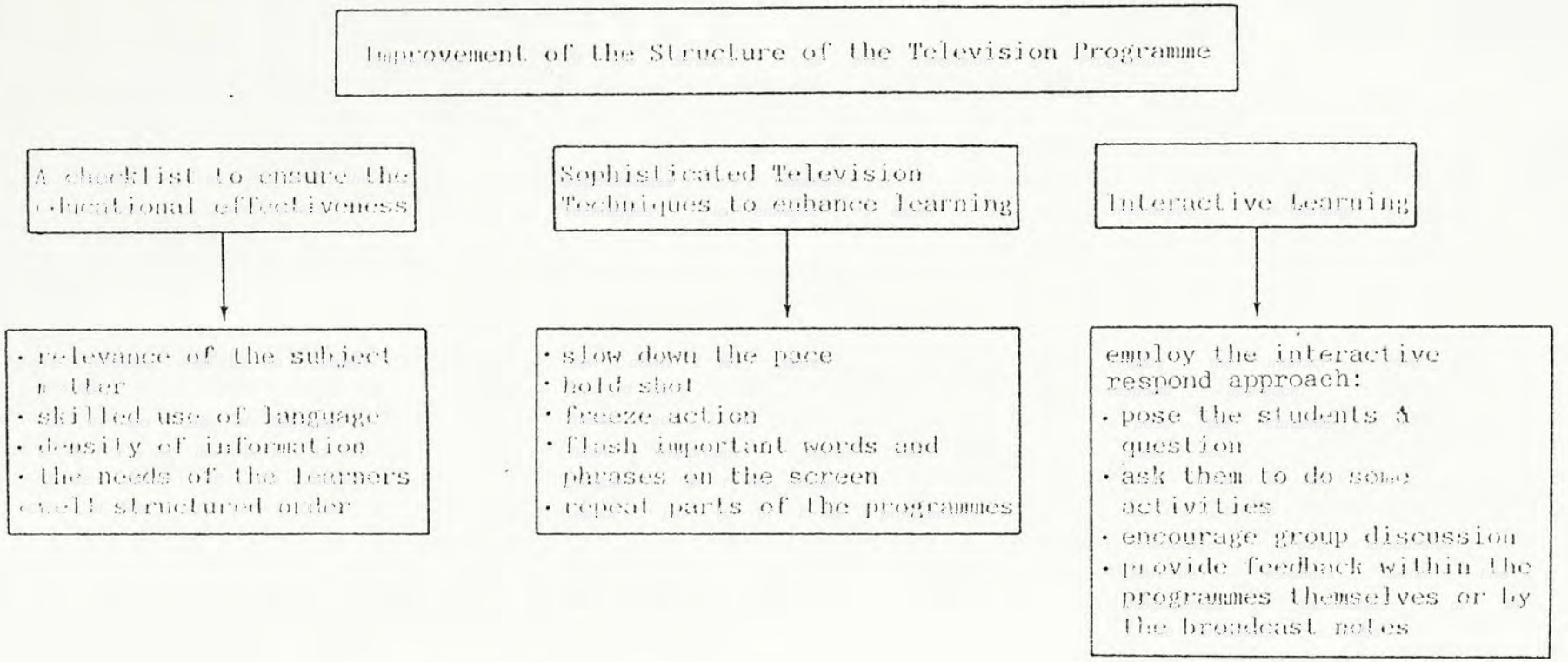
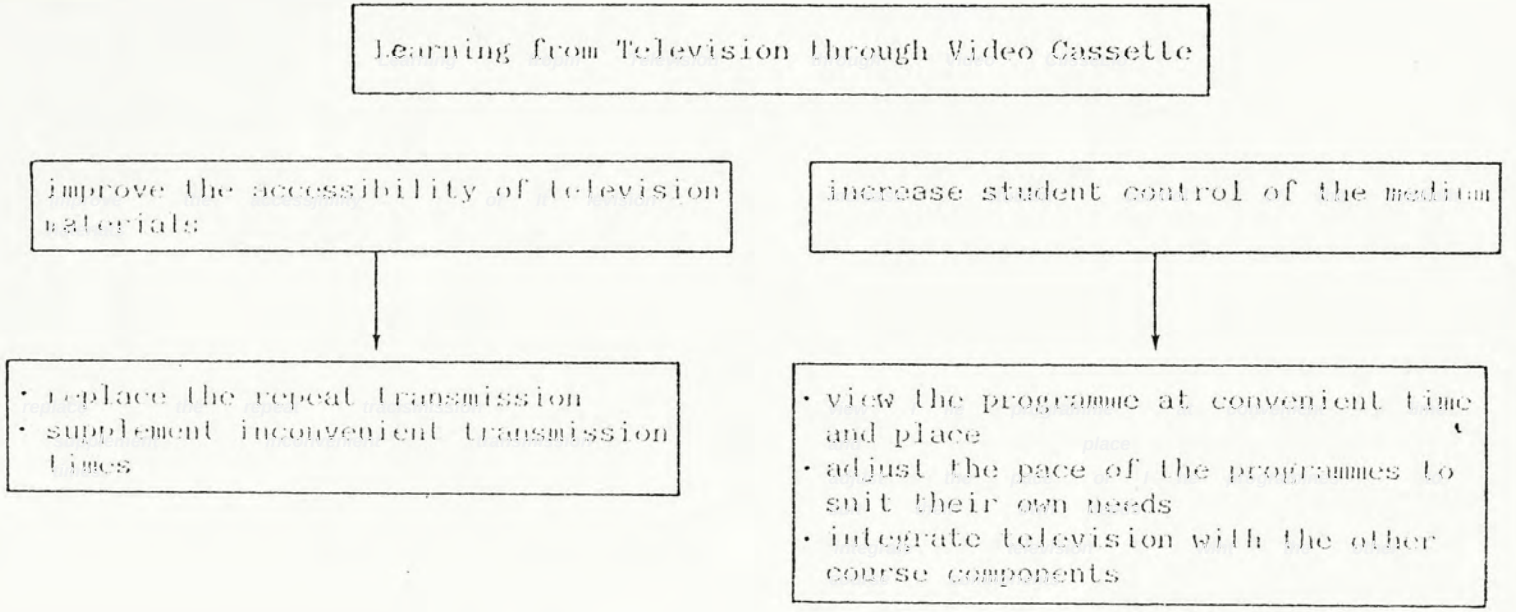

Improvement of the Structure of the Television Programme
A checklist to ensure the educational effectiveness
Sophisticated Television Techniques to enhance learning
Interactive Learning
· relevance of the subject matter
· skilled use of language
· density of information
· the needs of the learners
· well structured order
· slow down the pace
· hold shot
· freeze action
· flash important words and phrases on the screen
· repeat parts of the programmes
employ the interactive respond approach:
· pose the students a question
· ask them to do some activities
· encourage group discussion
· provide feedback within the programmes themselves or by the broadcast notes

Diagram IV


Learning from Television through Video Cassette
improve the accessibility of television materials
increase student control of the medium
· replace the repeat transmission
· supplement inconvenient transmission times
· view the programme at convenient time and place
· adjust the pace of the programmes to suit their own needs
· integrate television with the other course components

CHAPTER SIX

CONCLUSION : IMPLICATIONS FOR DISTANCE EDUCATION IN HONG KONG

Justifications for the Provision of Distance Education in Hong Kong

To many distance educators, conventional schooling has been unable to meet the demand for education in the modern world. People like Bonani (127), Gitace (128), Singh (129), Ansere (130), Datt (131), Gupta (132) and Peters (133) all share, in varying degrees, this view on the inadequacy of conventional schooling. On the level of higher education, it is generally recognized that the dearth of places in conventional universities and other post-secondary institutions has caused the deprivation of educational opportunities for the less fortunate. Distance education has been established in many societies in response to the increasing demand for tertiary education. Distance education is one of a number of terms used to describe the development and use of teaching strategies other than conventional instruction given in an educational institution. It can extend educational opportunities quickly to large numbers of people by using self-learning printed materials, with support provided by broadcasting and other audio-visual means, face-to-face tuition and laboratory sessions where necessary.

From the experiences of many countries, a distance learning system can make education much more accessible, since it is not, like conventional education,

restricted by factors such as time, space, geography and job and family commitments. As far as cost advantage is concerned, the UKOU gives solid evidence that a distance learning system can be cheaper than formal learning system. After analysing the situation of the UKOU, Leslie Wagner concludes that it costs less to produce a graduate through that university than through traditional ones. (134) The same can be said about distance learning projects in Germany, South Korea and Japan at secondary and tertiary levels. (135)

It has been claimed that distance education can provide wider access to education in a cheaper way. Moreover, from studies, it has been demonstrated that distance learning methods can be successfully used at various levels without a lowering of academic standards. A number of studies have shown that cognitive objectives in general and psychomotor objectives aimed at written skills are attained at least as well by distance study as by conventional classes. (136) Childs also agrees that there are no studies of achievement which show that distance study students do less well than classroom students. (137) A review of data from distance study projects in Germany, Kenya, Mexico, Australia, Japan, Britain, the USA and Poland show that distance study students learn at least as well as students in the same curriculum in the conventional classroom. (138) For the UKOU, after fifteen years of practice, its commitment to distance education demonstrates encouraging results. Its graduates are successful in applying for higher degree studies at other universities on the strength of their UKOU undergraduate degrees. (139) Moreover, survey data also illustrate that more than one in two graduates can secure better pay, promotion or job change with the help of their UKOU qualifications. (140)

TABLE VII : NUMBERS OF GRADUATES WHO ARE SUCCESSFUL IN APPLYING FOR PROFESSIONAL AND POSTGRADUATE STUDIES IN 1980

Type of Studies	Number
Research degrees	1723
Masters degrees	2781
Professional diplomas and certificates	1772
Academic diplomas and certificates	492

* Total Number of graduates in 1980 : 38,762

Source : Betty Swift, "Outcomes of Open University Studies - Some Statistics from a 1980 Survey of Graduates", Open University Survey Research Department Paper, (No. 197, 1980).

TABLE VIII : PROPORTIONS OF GRADUATES SECURING VARIOUS OCCUPATIONAL BENEFITS IN 1980

Type of benefit/ change:	a) % reporting achievement without help from OU qualifications	b) % reporting OU qualifications helped	c) % reporting that OU qualifications were crucial
Extra increment, better pay	9	23	15
Promotion	17	26	13
New occupation	4	11	9
More specialist job	4	11	7
Switch of specialism	3	7	3
Re-entering paid employment	2	2	1
% reporting at least one of the above	31	53	37

* Apart from any effects on their career, 71 per cent reported that their UKOU studies had helped them improve their job skills and their ability to perform their job.

Source : Bettey Swift, "What Open University Graduate Have Done" Open University Survey Research Department Paper, (No. 230, 1982).

Hong Kong has certainly come a long way in the last decade in meeting the educational needs of its citizens. The provision of tertiary education has been on the increase recently, due to a continual annual expansion of 4 per cent of the student population at the two local universities since 1981. In 1982, however, only 2 per cent of the 17-20 age group in Hong Kong was admitted to university in Hong Kong, compared with about 5 per cent in Singapore, 11 per cent in Britain, 15 to 20 per cent in much of Europe and over 30 per cent in North American, Japan, Australia and New Zealand. The university entrance figure for Hong Kong was subsequently raised to 2.8 per cent in 1985. Current government policy is to boost the entrance figure to 5 per cent by 1989-90 (5,200 places), and to 8 per cent by 1994-95 (7,000 places). To meet these targets, the government has asked the UPGC to study the possibility of further expanding the two universities and to plan for the establishment of the third university.

In the field of technical education at tertiary level, the provision also falls far short. For example, in 1985, 25,753 applicants competed for 3,577 places in the full time programme offered by the Hong Kong Polytechnic. The ratio of application to enrolment is 7.2 to 1. In addition to the shortage of places for school leavers, there is also a significant demand for second chance education and in-service training for adults in Hong Kong. Clearly, the further education and training for the workforce is especially important for the present and future development of industry, commerce and social services. Yet current provision of part-time learning programmes and in-service training simply cannot keep pace with the demand. In 1985, for example there was 2.24 qualified applicants for every part-time place at the Hong Kong Polytechnic. It is also necessary, therefore, to improve and

expand second chance education on the post-secondary level in order to cope with the demand.

In response to the mounting demand for tertiary education, the Government has increased places at the universities, upgraded Baptist College and established the second polytechnic and the Vocational Training Council. It is nevertheless obvious that conventional institutions of higher learning cannot expand indefinitely because of the inhibiting factors such as space, staffing and resources. Like their counterparts in other societies, educators in Hong Kong have also invested effort and time to study the applicability of distance education as a means of popularising higher education in the local context.

Some Initial Considerations

It is clear that an effective way to develop distance education on tertiary level is needed urgently in Hong Kong. As already mentioned in Chapter One, due to the factors of cost-effectiveness and limitations of resources, it is not justifiable for this society to bear the initial high cost involved in setting up a distance education university. Rather, a distance study system which is an extension service of the conventional institutions would be more practicable. Actually, in order to have a rapid implementation, the development of a distance learning system within the present course structure of existing post-secondary institutions would be an immediate solution. To increase the enrollment in the existing courses, the tertiary institutions should provide alternative mode of attendance. While some students attend full time, as previously, others can learn at a distance following the same course leading to the same degree award. The distance study students will have to be selected along the same lines as the on-campus

students. Certainly, as the distance learning mode is not restricted by time and space, educational opportunities will be more accessible. Moreover, due to the limitation of resources, it is more advisable to develop those courses which reflect the community needs. Therefore, it is necessary for each institution to identify those courses with the greatest need and assign a priority order.

In order to ensure that there is no needless or wastefull duplication of effort, the government should firstly assemble as soon as possible an independent Distance Education Committee to coordinate the development of distance education. Overseas experts and representatives of the local tertiary institutions should be invited as members of the Committee. The Committee should be bascially responsible for the general policy, such as admission criteria, estimated cost, and academic standards. Secondly, based on the recommendations of the Committee, the government should create a central Institute of Distance Education which handle the design and administration of the distance learning courses for all tertiary institutions. The design and production of the distance learning materials should be undertaken by a team of academic staff, instructional designers and media specialists. Course teams as utilized by the UKOU in the production of distance learning materials are sophisticated and complex. In the initial stage of development it is not envisaged that the course teams will be as complex as those of the UKOU. The full time academic staff and educational technologists of the existing tertiary institutions could contribute to the course production. However, as the production of distance learning materials require special knowledge and technique, relevant training would be necessary. Since the academic staff are fully occupied by teaching and research during the academic year, the production of course materials can be carried out during the low academic periods such as the summer vacation. Alternatively, the individual institutions can encourage their staff actively

involved in the production activities by reducing their teaching committment over an academic year.

The Implication of the UKOU Television Learning for Hong Kong

From the experiences of distance education systems in other countries, the production of effective learning materials is the primary and possibly the most difficult task. This will certainly apply to the Hong Kong situation. As distance education is a relatively new phenomenon in Hong Kong, it is worth learning from the experiences of other successful distance education institutions. Clearly, the UKOU is a well-known example which can give useful guidelines for the development of distance learning courses in Hong Kong.

The UKOU is one of the distance education institutions which use television extensively. Its experiences and strategies of using television illustrate the particular strengths of this medium. As television is an expensive and demanding resource, it is necessary to identify when television can better contribute to learning and how it can be used effectively. Without doubt, the UKOU's strategies for the development of effective television learning can provide insights and practical guidelines for the design of distance learning materials in Hong Kong.

Transmission Arrangement

Basic to the problem of television learning in distance education is the transmission arrangements. The viewing rates of broadcasting television are dependent on the prime transmission times and repeats. At the UKOU, the decline in viewing rates was not due to a drop in the quality of the programmes

themselves, but to the loss of repeats and a steady deterioration in the times offered by the BBC. The lesson here is clear to us. If television is used to facilitate student learning, we must first obtain agreement with the television stations for popular transmission times and sufficient slots for each programme to be broadcast twice in the same year.

The need to require great amounts of television transmission time is a problem peculiar to the UKOU, which uses television as a component for a wide range of courses. For Hong Kong, as the distance learning courses would be limited to those which only reflect the community needs, the amount of transmission time needed will be much less. On the other hand, distance learning courses would be competing with general service needs and other educational and specialised users for limited broadcasting times. In this sense, the low number of students on some of the distance learning courses will not be significant for the allocation of popular transmission time. Therefore, although the transmission time needed will be less than that of the UKOU, the low number of course students will not help to compete for peak transmission time, which is most convenient for the working adult of Hong Kong.

Learning Television from Video

Due to the limited availability of transmission time, it will be more advisable to use video technology to deliver television programmes to the students. The successful Video Loan Scheme at the UKOU is a good example for Hong Kong. The audio-visual section in some of the public libraries could distribute video tapes to the students. However, the extension of the audio visual service to all public libraries would be necessary for the successful operation of a video loan scheme. In addition, since most students are unable to find an appropriate study environment at home, a

network of study centres equipped with video equipment would have to be provided. Unlike the UKOU, the distance involved in Hong Kong is much smaller so that travel to study centres for viewing television materials would not present severe problems.

In order to fully exploit the educational advantages of video technology, we can use video programmes instead of broadcasting materials recorded on video tapes. It means that from the outset, we should design television programmes which are intended to be viewed on video-cassettes. Although the television programmes are designed for use primarily on video-cassettes, they can reach the students through broadcast in "off-peak" hours. Even if the transmission time is not convenient for the students, they could make video recording of the programmes and view them anytime they like. Moreover, the existing audio visual centres in tertiary institutions can contribute to the production of video programmes. The audio visual centres concerned could charge marginal cost of providing the services. In this sense, the costing for video programmes productions would be only actual, additional expenditure directly incurred by extending the already existing services available in tertiary institutions. It will not be necessary to pay an initial high cost for the setting up of a production centre solely serving the distance learning extension.

Skill of Learning from Television

The UKOU has the problem of developing student's skill in learning from television. The same could be said about distance learning courses in Hong Kong. Without doubt, Hong Kong students have grown up in a television age but they are not prepared to learn through television. Although they have experiences in instructional television programmes during their primary and secondary

education, they do not know how to learn from television in a distance mode. Therefore, the application of relevant strategies to help students to learn from television is particularly necessary. In the first place, we can employ video programmes for face-to-face sessions and group discussions. In this way, the tutors can guide the students how to use television materials and the skills for learning from television can be gradually developed. It follows that the instructional staff needs to receive training on using television for instructional purposes. In tertiary institutions, many academics have no training, background or interest in using media for teaching. Few of them are aware of the educational potentials of television as an instructional medium. They are reluctant to invest effort and time to master the new skills required for television to be used well. Consequently, this will be the major constraint in using television materials effectively in the distance learning courses.

Implication for Conventional Teaching

The UKOU experiences can also provide implications for conventional university teaching if television materials are used to facilitate learning in the classroom situation. In fact, in the existing university teaching, the role of television is not crucial, it only provides enrichment. However, the UKOU provides a successful example of using television to develop skills of analysis, interpretation, evaluation and application. Therefore, the UKOU experience could bring a new dimension to the role of television as a facilitator of learning in the local conventional context.

In conclusion, the UKOU does not rely entirely on television materials, nor as we recognize, does its teaching system provide a model for distance learning courses based on the existing course structure in conventional

tertiary institutions. Nevertheless, there are aspects of the UKOU's experiences of designing and using television programmes which must be taken into account if television materials are ever to form a regular and important part of study in our distance learning courses. Cleary, the UKOU strategies do provide some guidelines, but we are sure that we should work out the strategies more appropriate to our own situation.

APPENDIX

The UKOU Television Programmes which are analysed in this thesis:

1. DE351 People and Work
   Management

2. DE353 Mass Communication and Society
   Power of the Medium, The

3. E321 Management in Education
   Sidney Stringer - A Case Study in Management 1

   Sidney Stringer - A Case Study in Management 2

   We have Consensus

   I cannot negotiate

   Atkinson College - Management in Crisis

4. E362 Cognitive Development: Language and Thinking from Birth to Adolescene
   Design for Science Teaching

5. S299 Genetics
   Human Diversity

6. T101 Living with Technology
   Home

   Seeing Through Drawings

   Electric Money

   Sound in View

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